Shattered Assumptions, Attachment, Social Support and Other Risk Factors for the Development of Symptoms of Post-Traumatic Stress Disorder (PTSD) Following Childbirth: A comparison of women in Saudi Arabia and the UK

by

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ABSTRACT

Previous research has indicated that some women develop post-traumatic stress disorder (PTSD) following childbirth, with several factors implicated in terms of protection from, or risk of, PTSD symptom development. However, to date most studies are in Western contexts and none have been carried out in Saudi Arabia. Nor have many studies of PTSD following childbirth examined the key vulnerabilities and predictors that have been related to the development of PTSD symptoms in other contexts. These include the mother's assumptions, religion and her attachment style, as well as depression, anxiety and social support. These factors, whilst impacting on adjustment to traumatic events, are also important to study in the context of PTSD following childbirth, because some may also be related to mothers' ability to bond with their babies. This project had five main aims: 1) to review the current PTSD measures and identify a suitable one to use in this research; 2) to compare the prevalence rate of PTSD symptoms following childbirth among women in Saudi Arabia and Britain; 3) to examine the risk factors and association between assumptions, religion, social support, anxiety, depression and PTSD following childbirth up to one year; 4) to examine the role of adult attachment style in the development of PTSD following childbirth and its relationship with bonding; and 5) to observe the changes in PTSD symptoms, depression, anxiety, and social support over the two years post-childbirth. In addition, these factors were compared for two cultures (Saudi and British). 532 (408 Saudi and 124 British) new mothers were recruited online and from clinics in Saudi Arabia and Britain. Finally, 55 women from the first sample were followed for an additional year to examine changes in PTSD symptoms across time.

The results demonstrated that the Posttraumatic Diagnostic Scale (PDS: Foa et al., 1997) is a good tool for assessing PTSD following childbirth. Postpartum PTSD may affect around 14% of women in the UK and Saudi Arabia. Postpartum PTSD symptoms

were found to be related to more dysfunctional assumptions about the world, higher anxiety, higher depression, and less social support, across both cultures. New mothers who have an insecure attachment style (anxious, independent or lack of closeness) are also more likely to be at greater risk of developing PTSD symptoms following childbirth and those with higher PTSD symptoms have poorer bonding with their infant. PTSD symptoms are relatively stable up to two years postpartum. Cultural differences occurred throughout these relationships and the implications and limitations of each study are discussed.

For My Husband and Daughter

For your endless patience and support

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CHAPTER ONE
LITERATURE REVIEW

1.1 Aims and overview of the thesis

The aims of this thesis are to 1) compare the prevalence rate of Post-Traumatic Stress Disorder (PTSD) symptoms following childbirth among women in Saudi Arabia and Britain; 2) review current PTSD measures that have been used to assess the disorder after childbirth and identify the most suitable one to use in this research; 3) examine the risk factors and association between assumptions about justice, benevolence of people, randomness, benevolence of the world, self-worth, luck, self-controllability, religion, social support, anxiety, depression and PTSD following childbirth up to one year; 4) examine the role of adult attachment style in the development of PTSD following childbirth and its relationship with bonding; and 5) to observe the changes in symptoms of PTSD, depression, anxiety, and social support over the two years post-childbirth. These factors were compared for two cultures, those of: Saudi Arabia and the United Kingdom.

This thesis comprises eight chapters. The first chapter takes the form of a literature review covering all the study's variables, beginning with their definition and determination of their link with the symptoms of PTSD following childbirth. The second chapter discusses the general methodology of the study and procedures employed to achieve the aims of this thesis. The third chapter contains a systematic review of the scales used to measure PTSD following childbirth. The findings from this review guided the decision regarding the most suitable scale for this study. The fourth chapter presents a comparison between two different cultures (Saudi Arabia and Britain) in regards to PTSD symptoms following childbirth. The fifth chapter explores the association between factors including women's assumptions (about justice, benevolence of people, randomness, benevolence of the world, self-worth, luck, self-controllability), religion, social support and mental health (depression and anxiety) and

PTSD symptoms following childbirth. Chapter six details the role of attachment style in the development of PTSD symptoms following childbirth and its relationship with the process of bonding. The seventh chapter constitutes a follow up study to investigate changes in PTSD symptoms following childbirth over time. Finally, the discussion chapter finalises the thesis by presenting the overall findings, limitations and practical implications of the work. The aim of the literature review that follows is to highlight research that has addressed some of these factors while also identifying the gaps in the literature that this thesis is aimed at addressing.

1.2 Defining Post-Traumatic Stress Disorder (PTSD) following childbirth

PTSD refers to a trauma and stressor-related disorder that results after an individual is exposed to terrifying experiences (DSM-V, 2013). The Diagnostic Statistical Manual 5th Revision (DSM-V) of the American Psychiatric Association gives a definition that distinguishes PTSD from other stress-related disorders. According to DSM-V, PTSD occurs after an event in which a person or a significant other was exposed to death, a death threat, actual or potential serious injury, or actual or potential sexual violence (DSM-V, 2013).

The DSM-V criteria for diagnosis are stated as follows: “Diagnostic criteria for PTSD include a history of exposure to a traumatic event that meets specific stipulations and symptoms from each of four symptom clusters: intrusion, avoidance, negative alterations in cognitions and mood, and alterations in arousal and reactivity. The sixth criterion concerns duration of symptoms; the seventh assesses functioning; and, the eighth criterion clarifies symptoms as not attributable to a substance or co-occurring medical condition” (DSM-V, 2013).

The traumatic events are of varying kinds, such as war or political violence, community violence, natural disaster, being in or witnessing a serious injury, or domestic violence. The act of childbirth may, in some cases, comes under the category of a trauma, particularly when the experience has involved great physical risk to the mother and/or child, which includes extremely painful labour, those who gave birth in poor conditions, those who experienced severe medical complications, and labour that threatened the life and the mother or the child (Iles, Slade & Spiby, 2011).

The field of study relating to the relationship between PTSD and giving birth, has only really emerged in the last 20 years (Ayers, McKenzie-McHarg & Slade, 2015). Specifically, this stress experienced following childbirth was first recognised as PTSD in 1995 by Ballard, Stanley and Brockington, who highlighted this phenomenon and its implications in a notable case study. Since this landmark study, it has been a topic of much debate, with 'PTSD after childbirth', later 'PTSD following childbirth', becoming sociological terms (Ayers, Joseph, McKenzie-McHarg, Slade & Wijma, 2008). PTSD following childbirth will be the accepted term for this study.

1.3 Prevalence

In their review on post-traumatic stress following childbirth, Olde, Kleber, Hart & Pop (2006) reported 24-34% of women showed symptoms of PTSD in Europe and Australia, whilst 2.8–5.6% actually developed PTSD in this context (Olde et al., 2006; Nyberg, Lindberg & Öhrling, 2010). Recently, other studies have put the percentage of women who experience particularly traumatic childbirths at 14.3% (Boorman, Creedy, Devilly, Fenwick & Gamble, 2013). It is worth mentioning that the birth may be traumatic to some women, as described previously, but not all of them develop PTSD (Kleber, Brom, & Defares, 1992).

In this thesis, one key aim is to identify some of the factors that represent greater risk of PTSD symptoms following childbirth.

Different studies have come to different conclusions regarding the prevalence of PTSD following childbirth, depending on factors such as the population of study, types of measurements used and period of focus (Ayers et al., 2008). In most cases, the prevalence rate has been found to be between 1 and 9% (Ayers & Ford, 2009; Ayers et al., 2008), with some studies reporting up to 26% (Engelhard, van den Hout & Schouten, 2006). The majority of previous studies have used standard scales that have been adapted to childbirth-specific situations. On top of the usual problems associated with standard questionnaire measures, altering them increases the variances in expected outcomes (Verreault et al., 2012).

Some studies have shown that PTSD symptoms are reduced over the postpartum period (Denis, Parant & Callahan, 2011), with others indicating the converse situation (e.g. Alcorn et al., 2010). Alcorn et al.'s study of women in Australia revealed that 3.6% of females fulfilled the PTSD criteria four to six weeks post-partum, 6.3% at twelve weeks and 5.8% at twenty-four weeks. Zaers, Waschke, and Ehlert (2008) also demonstrated similar results for women in Germany. This variation may partially be due to the techniques (e.g. measures, sample characteristic) that were utilised within the different studies.

Studies investigating the prevalence rates of postnatal disorders across cultures suggest a similar prevalence in the USA, Australia and Europe (i.e. the UK, Italy, Sweden and the Netherlands) (Ayers et al., 2008). Other studies (e.g. Hanlon, Whitley, Wondimagegn, Alem, & Prince, 2009) have found lower rates of postnatal disorders in non-western nations, such as Ethiopia, with others showing higher rates of PTSD following childbirth in comparison with western cultures. For example, Shaban et al. (2013) found that 17. 2% of Iranian women had symptoms of PTSD following childbirth. Generally, the wide

differences in the existing studies make it difficult to draw a clear conclusion regarding the prevalence rates of PTSD symptoms across cultures. For, there is scant literature examining the rates of PTSD following childbirth that compares the experiences of women in different cultures. Hence, this thesis will address this gap in the contexts of Britain and Saudi Arabia.

1.4 Highlights of PTSD criteria changes in the Diagnostic and Statistical Manual of Mental Disorders of the American Psychiatric Association (DSM)

PTSD was first listed as a condition in the DSM-III in 1980, where it was defined as an anxiety-based disorder brought about by instances of war, muggings, rape or other extremely traumatic life events. These experiences had to be exceptional in their occurrence, not daily or commonplace stressors, in order to apply. Childbirth, then, would not be counted as a traumatic instance, according to this definition, due to its relative normalcy (DSM-III, 1980).

In the fourth edition of the DSM, the categorisation of traumatic experiences as they relate to PTSD was altered so that it included any event or experience that caused an individual extreme pain, suffering or fear (DSM-IV, 1994). The fifth edition takes these amendments further in a number of ways, with the definition shifting from being anxiety-based to the use of the terms ‘trauma’ and ‘stress’, while the classification of trauma becomes reliant on the individual having directly experienced or been present for the “actual or threatened death, serious injury or sexual violation”, whereas the previous criterion A2 (requiring fear, helplessness, or horror right after the trauma) was removed (see Table 1.1). Regarding DSM-V, it is important to note that certain events are excluded from qualifying as a traumatic event, including the unexpected death of a family member by natural causes. In addition, the symptomatic classification has been that an individual must experience symptoms in four instead of three areas: intrusion, avoidance, arousal and, the newest

addition, negative cognitions and mood. The last of these was formerly categorised under ‘avoidance’ in the DSM-IV, but was considered substantial enough to warrant specific attention. Other classifications have, in the fifth edition, been altered; arousal, for example, has been broadened to include more aggressive or self-destructive behaviours. Finally, two subtypes have been added: PTSD in children and PTSD with dissociative symptoms.

In order for a birth to be considered traumatic, the changes to event criteria are still appropriate, because women can directly experience the threat of death or injury. Also, the change from three to four symptomatic criteria may lower the rates of women reported as having experienced PTSD. In contrast, the removal of criterion A2, where the person has to respond to the event with intense fear, helplessness or horror, could increase the prevalence rates of diagnosis of PTSD following traumatic births (Boorman et al., 2013).

However, this thesis is based on the conceptualisation of PTSD according to DSM-IV criteria, because the study began before May 2013, when DSM-V was published. Additionally, the study also compares Saudi Arabia and Britain, where previous studies have been based on DSM- IV. Hence, the comparison had to be based on the previous studies within the UK in addition to the fact that almost all the PTSD measurement scales are based on the diagnostic criteria of DSM-IV.

Table1. 1
DSM-IV Criteria for Posttraumatic Stress Disorder

A. The person has been exposed to a traumatic event in which both of the following have been present:
(1) the person experienced, witnessed, or was confronted with an event or events that involved actual or threatened death or serious injury, or a threat to the physical integrity of self or others
(2) the person's response involved intense fear, helplessness, or horror. Note: In children, this may be expressed instead by disorganized or agitated behaviour.
B. The traumatic event is persistently re-experienced in one (or more) of the following ways:
(1) recurrent and intrusive distressing recollections of the event, including images, thoughts, or perceptions. Note: In young children, repetitive play may occur in which themes or aspects of the trauma are expressed.
(2) recurrent distressing dreams of the event. Note: In children, there may be frightening dreams without recognizable content.
(3) acting or feeling as if the traumatic event were recurring (includes a sense of reliving the experience, illusions, hallucinations, and dissociative flashback episodes, including those that occur upon awakening or when intoxicated). Note: In young children, trauma-specific re-enactment may.
(4) intense psychological distress at exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event.
(5) physiological reactivity on exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event.
C. Persistent avoidance of stimuli associated with the trauma and numbing of general responsiveness (not present before the trauma), as indicated by three (or more) of the following:
(1) efforts to avoid thoughts, feelings, or conversations associated with the trauma
(2) efforts to avoid activities, places, or people that arouse recollections of the trauma
(3) inability to recall an important aspect of the trauma
(4) markedly diminished interest or participation in significant activities
(5) feeling of detachment or estrangement from others
(6) restricted range of affect (e.g., unable to have loving feelings)
(7) sense of a foreshortened future (e.g., does not expect to have a career, marriage, children, or a normal life span)
D. Persistent symptoms of increased arousal (not present before the trauma), as indicated by two (or more) of the following:
(1) difficulty falling or staying asleep
(2) irritability or outbursts of anger
(3) difficulty concentrating
(4) hyper vigilance
(5) exaggerated startle response
E. Duration of the disturbance (symptoms in Criteria B, C, and D) is more than one month.
F. The disturbance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning.

1.5 Theoretical model of PTSD

The expanding knowledge base has brought with it an ever-growing number of theories of PTSD, which have attempted to keep pace with new findings while at the same time remaining anchored in basic psychological research. Several initial PTSD disorder theories have shaped the present views on the matter, e.g. conditioning theories (Keane, Zimering & Caddell, 1985), information-processing theory (Creamer, Burgess & Pattison,1992) and social-cognitive theory (Brewin & Holmes, 2003).

The conditioning theories address learned associations and avoidance behaviours. According to Keane et al. (1985), the early conditioning theories explain the strong correlation between trauma cues and the ability to provoke fear through the processes of stimulus generalisation and higher order conditioning. Whilst repeated exposure to spontaneous memories of the trauma would normally be sufficient to extinguish these associations, extinction would fail to occur, if the person attempted to distract themselves or block out the memories, thus rendering the exposure incomplete. Avoidance of the conditioned stimuli, whether through distraction, blocking of memories, or other behaviours, would be reinforced by a reduction in fear, leading to the maintenance of PTSD. However, Brewin and Holmes (2003) stated that the theory is limited by the absence of cognitive elements in explaining many of the symptoms and data concerning PTSD, especially those dealing with beliefs and perceived threat.

Information-processing theory deals with the encoding, storage, and recall of fear-inducing events and their related stimuli and responses. Creamer et al. (1992) stated that it provides clarity on several aspects, including the cognitive framework that represents the traumatic event, the impacts on attention, and how the overturning of assumptions increases the number of potential trauma reminders. However, information-processing theory is less

able to account for the importance of emotions other than fear and of beliefs extending beyond the issues of danger to the wider social context (Ledoux, 1998).

Social-cognitive theory mainly concentrates on how trauma penetrates mental structures and impacts on internal methods of settling conflict between new information and existing beliefs as well as how trauma impacts on the individual in the short term and/or how it is represented in memory. This theory is important for identifying common themes in schema change, specifying the role of the person's social and interpersonal context in facilitating or blocking this process, and emphasising the possibility of positive reframing of the trauma and posttraumatic growth (Horowitz, 1986). Brewin and Holmes (2003) noted that, in contrast to information-processing theory, social cognitive theory can manage various emotions and beliefs affected by trauma and long-term adaption, but does not clearly differentiate PTSD from other conditions, such as depression and cannot successfully handle reactions to trauma cues. This research is focused on a particular social cognitive theory, which is the theory of shattered assumptions.

1.5.1 Theory of shattered assumptions and PTSD

The theory of shattered assumptions is derived from conventional individual internal models. They provide a support system for individuals in their everyday lives, helping them to surmount obstacles and make future plans. Janoff-Bulman (1992) asserted that there are three common assumptions that have the highest degree of influence on trauma responses: i) the world is benevolent, i.e. people are kind and friendly; ii) the world is meaningful, i.e. there are dependable rules and principles in society that facilitate accurate predictions between actions and consequences; and iii) the self is worthy, i.e. as an individual, one is inherently good, moral and well-intentioned. When situations occur that could potentially be traumatic, it is possible that intrinsic and commonly unexamined assumptions about the

world and oneself will be destroyed. Examples of such situations include an unprovoked attack by a stranger; experiencing a serious accident whilst observing the rules of the road; or in life-threatening circumstances, when there is the need to prioritise one's own survival. Brewin and Holmes (2003) pointed out the significance of the theory of shattered assumptions in respect of determining common factors in schema changes, identifying the individuals' actions in enabling or preventing these changes from occurring in terms of social and interpersonal behaviours, and highlighting the potential to view the trauma in a more positive light, thereby experiencing posttraumatic growth.

Bolton and Hill (1996) added that individuals' actions in the world are dependent on holding three beliefs: they are sufficiently capable of acting, the world is sufficiently predictable, and the world provides sufficient satisfaction of needs. Traumatic events are extremely unpredictable, negative, and elicit feelings of severe vulnerability, so consequently these three beliefs are shaken. According to these authors, this can potentially generate serious conflict and delusion, because the trauma opposes an individual's inherent beliefs, yet these beliefs tell the individual that the trauma cannot possibly have occurred.

According to the theory of shattered assumptions, those most affected by traumatic events are those who have previously had the most positive life-experience and thus, hold the most positive assumptions (Janoff-Bulman, 1992). However, this has been disproven by several researchers, including Resick (2001) and Brewin et al. (2000), who argue that having experienced previous trauma greatly increases the possibility of developing PTSD. This is a difficult concept to reconcile, as previous experience of trauma should hamper at least some of an individual's positive assumptions about the world. Janoff-Bulman (1992) proposed two points of reconciliation for this issue. Firstly, individuals who hold the most positive assumptions, indeed, suffer the most distress initially, but recuperate quicker (it should be noted that this has not been tested empirically). Secondly, previous trauma would pose a risk

of developing PTSD, if the individual had not yet managed to restore an inherent sense of stability and security. This suggests that, if they have already been destroyed, trauma cannot destroy assumptions further. Whilst the complexity of this inherent psychological helplessness has not been quantified, several researchers, such as Grey et al. (2002), have acknowledged that it is clinically beneficial to highlight how prior beliefs affect trauma processing and to concentrate on purposefully updating information during recovery. This is discussed in further detail in chapter 5.

1.6 PTSD and PTSD following childbirth

In order to receive a diagnosis of PTSD, a person must have three different types of symptoms: re-experiencing symptoms, avoidance and numbing symptoms as well as arousal symptoms. PTSD is not diagnosed unless the symptoms last for at least one month and either cause significant distress or interfere with work or home life (DSM-IV, 1994).

Based on research by Joseph et al. (1997), one of the issues arising from the PTSD literature is whether there are specific types of PTSD according to trauma group. Recent evidence implies that there are at least some idiosyncratic features in the presentation of PTSD generally, e.g. re-experiencing symptoms, avoidance, and arousal symptoms. In women following traumatic childbirth, avoidance is a defining characteristic of PTSD, and in women with PTSD following childbirth, re-experiencing of the childbirth and sexual avoidance would seem to be one manifestation of avoidance along with a fear of childbirth (Joseph et al., 1997). PTSD following any event has a similar symptom profile. Trauma symptoms are focussed on the traumatic event (re-experiencing it, avoiding reminders of it) and a diagnosis of PTSD is not possible without the gateway criterion of a traumatic event,

which means that a PTSD following childbirth diagnosis is not distinct from general PTSD (Ayers & Ford, 2012).

Furthermore, it is likely that some women who do not meet the full diagnostic criteria for PTSD following childbirth will exhibit partial symptoms and significant distress. A study conducted by Czarnocka and Slade (2000) employed a sample of 264 women, who had experienced a normal spontaneous vaginal delivery of a healthy baby. Inclusion in the study did not depend on being a first-time mother, and it was conducted via a questionnaire self-report. The findings indicated that 64 participants (24.2%) were partially symptomatic, reporting symptoms including hyperarousal, avoidance, and intrusions, and another eight participants (3%) displayed symptoms of PTSD. according to the criteria in DSM-IV (APA, 1994).

1.7 Traumatic birth and negative birth experience

Birth trauma is an event occurring during the labour and delivery process that involves actual or threatened serious injury or death to the mother or her infant. The birthing woman experiences intense fear, helplessness, loss of control, and horror, to such a degree, that it can make the mother prone to a traumatic condition, with a prolonged psychological and/or physical effect (Beck, 2004). Women reported birth as traumatic when they felt powerless, lacked information about the birth procedures, experienced physical pain, and perceived there to be unsympathetic attitudes of the healthcare providers. These women with trauma had experienced significantly more infant death and a higher number of invasive procedures (Menage, 1993).

It is widely accepted that some women develop a psychological disorder following a traumatic childbirth, while other women not develop based on different factors may they

have (Bailham & Joseph, 2003). Hofberg and Ward (2003) concluded that various degrees of negative birth experiences are typical, even when pregnancy and childbirth are much desired by the women. According to Creedy et al. (2002), 33% of births have the potential to cause negative psychological feelings in mothers, including a sense of lack of control, depression, an acute fear of childbirth, a lack of trust in obstetric staff, and fears of their own incompetence. After a traumatic childbirth, 2% to 21% of women meet the diagnostic criteria for PTSD (Ayers, 2004; Ayers, Harris, Sawyer, Parfitt, & Ford, 2009), involving the development of three characteristic symptoms stemming from the exposure to the trauma: persistent re-experiencing of the traumatic event, persistent avoiding of reminders of the trauma and a numbing of general responsiveness as well as persistent increased arousal (American Psychiatric Association, 2000).

1.8 Measuring PTSD following childbirth

For the majority of clinical diagnoses, psychological assessment plays a vital role. It provides information relating to the construction of causal frameworks for disorders, intervention schemes, prediction of future behaviours, and for the assessment of treatment effects. Thus, clinical diagnoses are very much affected by the assessment tools used to provide the information on which the decisions are founded in the first place (Haynes, Richard, & Kubany, 1995). The assessment of PTSD following birth takes several forms, through clinical diagnosis based on the diagnostic criteria, interviews or by self-assessment by questionnaires.

Over the past three decades, the number of PTSD questionnaires used by clinical health professionals has significantly increased. These questionnaires vary, based on, first, the trauma exposure types: general traumatic event (Foa, Cashman, Jaycox, & Perry, 1997;

Horowitz, Wilner, & Alvarez, 1979) or specific trauma exposure (Wijma, Söderquist, & Wijma, 1997; Czarnocka & Slade, 2000; Sorenson, 2000b, 2003). Second, they vary in terms of the number of PTSD criteria that are measured, for some assess PTSD-profiles (including all PTSD criteria) (PDS: Foa et al., 1997), whilst others do not assess all the criteria (IES; Horowitz et al., 1979). Therefore, the judgement on which type of questionnaire is best for a study is challenging.

Within the relevant literature, PTSD has been evaluated via the use of both general PTSD questionnaires and those concerned with the specific link between childbirth and PTSD. As such, this has resulted in confusion regarding which measures are the most effective, and which will offer the most accurate outcomes (for example, in assessing prevalence figures). The prevalence of PTSD is reduced by just under 1.9% at a period of eight weeks, following childbirth, by using general traumatic scales (TES) compared to a childbirth-specific scale (Soet, Brack, & DiLorio, 2003). A second study found that prevalence is increased by 3% at a period of six weeks, following childbirth, when utilising a more specific questionnaire (linked with childbirth) (Czarnocka & Slade, 2000).

The majority of these tools produce suitably effective psychometric outcomes, but they do often vary widely in terms of administration time and the trauma populations for which they were originally constructed as well as how regularly they are employed within clinical or research settings. In recent years, a number of published reviews have sought to evaluate many instruments, which assess different traumatic events (Briere, 2004; Elhai, Gray, Kashdan, & Franklin, 2005). Other reviews have assessed the PTSD scales as part of a general review for PTSD following childbirth (Olde et al., 2006; Ayers, 2004). However, there has been no single review that targets the quality and use of instruments that measure PTSD following childbirth. Hence, part of this thesis is a systematic review of the scales for

the measurement of PTSD following childbirth, which will help in choosing the highest quality scale in this context for use in later chapters.

1.9 Mothers' attachment style

Attachment is a deep and enduring emotional bond that connects one person to another across time and space (Ainsworth, 1978; Bowlby, 1969). John Bowlby (1982) defined attachment as: "the disposition of the child to seek proximity to and contact with a specific figure and to do so in certain situations, notably when he is frightened, tired or ill." Bowlby (1979) stated that '' . . . attachment behaviour is held to characterize human beings from the cradle to the grave …'' (p. 129). Also, attachment is seen in adults' relationships with their social partners (e.g. best friends, spouses) as well as, for some, continued attachments with their parental figures (Bowlby,1982).

Bowlby (1988) conceptualised that humans have an innate motivation that drives them to find support from a significant figure or others in a time of need (Mikulincer, Shaver, & Horesh, 2006). Relationship experiences with significant others are mentally represented in relatively stable internal working models and are thought to influence the thoughts, feelings, and behaviours regarding whether, when and who individuals seek during times of distress and need (Ainsworth, 1991; Bowlby, 1988).

The ground-breaking work on which current classifications of individual differences in attachment are largely modelled, was conducted by Ainsworth in 1976. Using observations of children briefly removed and then returned to their mothers, she identified three distinct patterns of attachment: secure attachment, avoidant attachment and anxious attachment. Whereas avoidant attachment has its roots in distant parenting and anxious attachments are the result of inconsistent and confusing parental responses, secure

attachments are reported in the parent-child relationship as being based on consistent and affectionate responses (Alexander, 2009).

In terms of adults' attachment relationships with adult social partners, theattachment patterns are commonly conceptualised in two dimensions. The first dimension, attachment avoidance, involves assessing the desire to limit closeness and maintain psychological and emotional independence from significant others. The second dimension is attachment anxiety, which assesses the concern that relationship partners might not be available or supportive when needed. Persons who score low on both dimensions are prototypically secure (Griffin & Bartholomew, 1994). Securely attached people form expectations in their minds that the attachment figures or significant others are going to provide support in times of need. When these people are unsupportive or unavailable, felt security is undermined and the individual may develop stress, emotional problems and/or health problems (Bakermans-Kranenburg &Van IJzendoorn, 2009). Individuals vary in the nature and content of their internal working models based on their history of interactions with significant others. These individual differences are referred to as attachment patterns or styles and are commonly assessed via observation, in infants and children as well as interviews or self-reports in children, adolescents, and adults (Ainsworth, 1991; Bowlby, 1988). In this study these concepts are assessed via The Revised Adult Attachment Scale (RAAS; Collins, 1996) that has three dimensions: closeness, dependence, and anxiety. The closeness style refers to that an individual is at ease being close and caring with another individual, while the dependence style indicates that the individual thinks that they can rely on others for support. Finally, the anxiety style pertains to the degree to which the individual is concerned about not having support or relationships (Collins &Read, 1990).

The association between early attachment experiences and adult attachment styles is likely to be established in early experiences with parents and associated working models

formed during infancy and early childhood (Bowlby,1973). These associations are also affected by attachment-relevant experiences during later childhood and adolescence as well as recent experiences in adult relationships that moderate the effects of representations of past experiences. Studies (Davila & Cobb, 2003; Davila et al., 1997) consistently yield a moderate degree of stability in attachment patterns from infancy to adulthood and a moderate to high degree of stability throughout the adult years, but they also reveal lawful discontinuities in attachment patterns in response to changing life circumstances The evidence suggests that changing attachment relationships in adulthood can change the organisation and functioning of the attachment system (Hamilton, 2000; Lewis et al., 2000).

Attachment system functioning has been shown to be relevant to an individual's mental health and adjustment to stressful situations. The sense of being supported and being loved by attachment figures results naturally in a stable sense of self-esteem and positive representation of others, whilst also enhancing the ability to cope with and manage stress (Mikulincer et al., 2006). On the other hand, attachment insecurities are perceived as risk factors that foster negative affectivity, reduce resilience in times of stress, and contribute to emotional difficulties, maladjustment, and psychopathology (Fearon & Mansell, 2001). Catanzaro and Wei (2010), for instance, explained that attachment insecurities (anxious and avoidant types) correlate with depression, while Bosmas, Braet, and Van (2010) associated attachment insecurity with substantial anxiety and Ditzen et al. (2008) did so with PTSD. Adults with a secure attachment were observed to be trusting, presenting with low anxiety and low avoidance, whilst also being emotionally open and confident (Bartholomew & Shaver, 1998). Adults who rated higher on attachment anxiety and lower in avoidant attachment tended to be overly attention-seeking and were sensitive to being ignored (Collins & Feeney, 2000). Individuals who demonstrated high levels of avoidant behaviour

and low anxiety tended to shy away from physical intimacy and demonstrated a distance from others.

The existing literature suggests a clear relationship between attachment and the occurrence of later psychological difficulties; problems later in life, such as anxiety and depression, can often be traced back to attachment in young childhood, with those reporting a secure attachment in later life being less likely to suffer from psychological issues (Sroufe, 2005; Brown & Wright, 2003; Van IJzendoorn & Bakermans-Kranenburg, 1996). There are a limited number of studies that have paid attention to the relationship between adult attachment styles and PTSD following childbirth. One was carried out by Iles et al. (2011) on a sample of 372 couples, who were within their first seven days postpartum. They sought to determine the role of attachment to the partner and perception of partner support on the development of PTSD following childbirth. The study found less secure attachment to be significantly associated with more PTSD symptoms, whilst conversely, secure attachment was linked to fewer of these symptoms. This was supported by Ayers, Jessop, Pike, Parfitt, & Ford (2014), who carried out a longitudinal study of a sample of pregnant women and three months later following birth (N=457). Women completed the adult attachment questionnaire (AAQ, Simpson et al., 1996) such that mother attachment style could be assessed and the posttraumatic diagnostic scale (PDS; Foa,1997) for PTSD symptoms. Avoidant attachment was significantly correlated with PTSD following childbirth, while ambivalent–anxious attachment was not.

Moreover, the findings have been supported by other studies that have not focused on childbirth. O'Connor and Elklit (2008) also found similar results when they investigated the impact of attachment styles on the development of PTSD among young adults. For the study, they utilised a sample of 328 Danish students with an average age of 29.2 years. The results of this study found that attachment styles had a strong association with PTSD

symptoms, emotional coping, and social support. Concordant results have been reported in other studies. For instance, attachment insecurities have been found to be associated with depression (Catanzaro & Wei, 2010), PTSD (Ein-Dor, Mikulincer, Doron, & Shaver, 2010), and suicidal tendencies (Gormley & McNiel, 2010). Meyer and Pilkonis (2005) found that the association between attachment insecurity and PTSD is dependent on prior experience of psychological, sexual or physical abuse. However, some studies involving large community samples give contradictory results. Mikulincer and Shaver (2001) reviewed cross-sectional, prospective and longitudinal studies that included clinical samples and found that attachment insecurity was prevalent among individuals with a variety of PTSD symptoms. However, the authors found that studies involving large community samples did not show an association between attachment style and PTSD. Hence, there is need for additional research on the role of attachment in the development of PTSD following childbirth; a gap that the present study seeks to fill.

1.10 Maternal bonding

According to O'Higgins, Roberts, Glover, & Taylor's (2013) clarification of the terms used to discuss attachment and bonding, 'attachment' was first used to describe a two-way relationship in which both parties are active (Bowlby, 1969). However, in this thesis, the term is used to describe the relationship between the mother and her own parents. In contrast, 'mother–infant bonding' refers to the mother's feelings towards her infant that do not require a response of any kind from the child, and this term and its definition are also adopted in the present work.

Prior and Glaser (2006) explained that typically the concept of bonding is confused with that of attachment. Bonding is occasionally considered identical to attachment or

explained as the mother's tenderness or endearment. The phrase 'maternal bonding' is utilised to explain the notion that women are more likely to create an emotional bond with their children naturally before and throughout the intense phase directly following birth (Kluas & Kennel. 1976). Unlike bonding, attachment is created gradually and via involvement. Scott (2011) explained that the immediate connect is also dissimilar in that bonding is specifically an adult's connect with a child, while attachment considers the connection from the child's view.

Whilst the postnatal period is a sensitive period for mother-infant bonding, studies have demonstrated that in normal circumstances there is significant stability in the bonding between mother and infant over the first 6 months (Taylor, Atkins, Kumar, Adams, & Glover, 2005; Fleming, Rubble, Krieger, & Wong, 1997). However, there has also been much research conducted into the effects of postnatal depression and psychological difficulties on the bonding process, where depressed mothers can often feel distant and detached from their child (O'Higgins et al., 2013; Murray et al., 1996; Moehler et al., 2006; Gavin et al., 2005; Figueiredo, Costa, Pacheco, & Pais, 2009).

The phenomenon of postnatal PTSD and its impact on mother-infant bonding have received little attention (Reynolda, 1997; Ballard et al, 1995; Allen, 1998). There have been a few studies, such as that of Davis, Slade, Wright, & Stewart (2008), which explored postpartum PTSD in 211 women and their perceptions of their infants. 3.8% of the participants fulfilled the full PTSD diagnostic criteria and reported significantly less warm and more negative maternal representations in their bonding with their babies. Also, Feeley, Cormier, Charbonneau, & Lacroix, (2011) investigated PTSD following childbirth and the mother-infant interaction and infant development in 21 mothers of very low birth weight infants, finding that 23% of the mothers had the disorder.

Mothers with greater PTSD symptoms were less sensitive and effective at structuring interaction with their infant. In one qualitative study into the effect of PTSD on new mothers and their bonding with their baby, all six of the women participating said that they had felt distant from their child, but that these feelings had eventually diminished. However, over the longer term these mothers tended to adopt an avoidant or anxious style with their child (Ayers, Eagle, & Waring, 2006). A wider study, with a sample of 126 mothers, found that PTSD following childbirth made the initial stages of parenting difficult, due to feelings of emotional numbing and avoidance (Parfitt & Ayers, 2009).

In contrast, Ayers (2007) found little association between parent-baby bonding and PTSD symptoms following childbirth. This lack of a strong link could be attributed to the methodology used in conducting the research. Regrading which, the measure used by Ayers (2007) focused on behavioural aspects of the parent-baby bond, rather than emotional ones, so could have measured 'care of the baby', rather than the emotional bond. For the present thesis, this was guarded against by employing MPAS (Condon & Corkindale, 1998), which takes account of clear emotional and caring features between the mother and infant.

In terms of the mechanisms by which PTSD may interfere with bonding, in accordance with previous conceptions of traumatic experiences, the child may become a trigger for flash backs as they are a symbol of the pain and fear of the birth itself. This may affect the parenting style of the mother; avoiding this trigger may result in a more distant style of parenting. Weaver (1997) has noted that, in some cases, mothers will separate themselves from their children in order to avoid being reminded of the trauma of the delivery, going so far as to express a feeling of terror in relation to their child.

As pointed out by Kumar (1997), in general, mother-baby bonding improves with time. Consequently, the earlier a measure is employed, the greater the percentage of poor bonding is found. Recently, Bienfait et al. (2011) found that at 48 hours following childbirth,

12.2 % of all mothers scored over the threshold for high risk of poor bonding on the Mother–Infant Bonding Scale (MIBS: Taylor et al., 2005). The general improvement in bonding scores with time agrees with the earlier observations by Robson and Kumar (1980).

1.11 Mothers' attachment style and bonding with their child

There is evidence of a link between the qualities of the mother-infant bonding and the mother's attachment style (Main & Hesse, 1990; Fonagy, Steele, & Steele, 1991; Ward & Carlson, 1995). Parents who had warmth in their childhood from their own parents and developed a secure attachment style were found to be more likely to have children who were classed as having secure attachment as well (Main & Hesse, 1990). On the other hand, parents who had experienced rejection and were classed as avoidant were most likely to have children classed as anxious or avoidant (Main, Kaplan, & Cassidy, 1985). In conclusion, the link between maternal attachment style and bonding with the infant is widely supported. but the effect of having PTSD following childbirth on the relationship between the two has not been examined as yet, e.g. an insecure attachment might predispose women to the development of PTSD symptoms, which might make bonding even more difficult.

1.12 The link between assumptions, religion, social support and PTSD following childbirth

PTSD theoretical models recognise the influence of individual differences and the impact of psychosocial elements on the risk of development of the disorder. This helps to explain the reasons why some females experience PTSD following challenging birthing experiences, while others do not. The theory of shattered assumptions developed by Ronnie Janoff-Bulman (1983;1992) (as cited in Lilly et al., 2011) can be employed to explain the

development of PTSD following childbirth. As previously explained, under the theory it is contended that people carry with them three key assumptions: the world is meaningful, the world is benevolent and the self is worthy. According to Janoff-Bulman the three assumptions enable human beings to make sense of the world and the events happening around them. They are integrated into the belief system of a human being and they assist people in overcoming unsafe and chaotic aspects of the world. However, proponents of the theory of shattered assumptions contend that these basic assumptions can be shattered by trauma, which disintegrates a person's belief system. When this happens, an individual may suffer from distress until the basic assumptions are restored (Lilly, Valdez, & Graham-Bermann, 2011).

When testing this theory among young adults, Lilly et al. (2011) hypothesised that the basic assumptions aid in the creation, restoration and maintenance of sense of attachment security within an individual. Positive assumptions lead to an increase in meaningful interactions, which impart a sense of safety, provide psychological resources for dealing with adversities and problems as well as triggering positive emotions (such as love, gratitude, satisfaction and relief). In a study that recruited women who had survived from intimate partner violence, Lilly et al., (2011) concluded that persons who hold onto the basic assumptions are less perturbed and recover quickly from associated distress. On the other hand, she found that shattered assumptions leads to individuals feeling insecure and to making less meaningful interactions. Janoff-Bulman's argument has also been supported by other studies that have linked more negative world assumptions to more symptoms of PTSD (Nygaard & Heir, 2012; Zukerman & Korn, 2013). This study will lead to the augmentation of prior research by focusing on the role of world assumptions in the development of PTSD following childbirth.

There has also been some minimal exploration of the extent to which PTSD and world assumptions are associated. For one study, for example, a follow-up seven years was conducted post traumatic event, with a number of adolescents who had been involved in a bus collision (Solomon, Lancu & Tyano, 1997). The research focused on the cognitive schemas of these individuals and it was found that they presented with more prominent symptoms of PTSD when their assumptions about benevolence of the world, benevolence of people, luck and self worth, were low. Further studies have supported this, noting that the assumptions of benevolence of the world, luck and self-control are significantly different in individuals experiencing PTSD compared with healthy controls (Foa, Ehlers, Clark, Tolin & Orsillo, 1999).

Moreover, a study conducted by Magwaza (1999) involved employing a sample of black South Africans suffering from PTSD and it was concluded that an individual's beliefs in the meaningfulness and benevolence of the world were majorly altered following a traumatic event, resulting in a conviction that the world is worthless and intimidating. In another example, Goldenberg and Matheson (2005) used a community sample and found that individuals who hold more positive worldviews experience less symptoms of PTSD.

The assumptions created, applied and propagated by an individual can be countered by extraordinary and significantly contradictory information, such as a traumatic event. When this occurs, the individual is forced to confront his/her inherent assumptions about the world, which are sometimes subsequently altered. This raises the issue of external indicators of the internal confusion caused by shattered assumptions. Janoff-Bulman (1992) proposed correlations between shattered assumptions and the symptoms of PTSD in several ways. For instance, the hyperarousal found in PTSD is considered the basic, fundamental, physiological response that is consistent with any scenario in which one is in danger. Given

that an individual continues to believe that he/she is in danger, and that this is likely mediated by an assumptive world that cannot soothe an anxious brain conditioned to danger cues, an individual continues to experience symptoms of hyperarousal. In addition to this psychological reaction, the individual must also manage his/her cognitive response to the traumatic event. This essentially means that, firstly, the individual strives to avoid the strong messages of lack of control and futility that are generated, as these could challenge their inherent assumptions, whilst secondly, the brain tries to reconcile the new information received during the traumatic event. This can manifest itself in denial that the event occurred, along with emotional numbness or intrusive thoughts that may cause cognitive dissonance to an unmanageable extent (although it may alleviate the fear and avoidance in the short-term).

There has also been some indication that there is an overlap between the world assumptions construct and the internal working model of attachment theory (Bowlby, 1969; 1982). In this overlap, when caregivers forms a healthy attachment with their infant, they will transfer skills that help the child to be effective in emotion regulation, as well as also nurturing a cognitive attributional style that helps the child to develop a positive sense of self worth through the understanding that the world is benevolent and safe to explore (Lilly et al., 2012). However, the link between world assumptions and PTSD, in particular following childbirth, has not been addressed as yet, which is one of this study's aims.

1.13 The link between mental health (anxiety- depression) and PTSD following childbirth

Researchers, such as Allison, Wenzel, Kleiman, and Sarwer (2011), consider postnatal distress to be composed of depression, anxiety, and PTSD. According to

Grigoriadis et al. (2011) and Giardinelli et al. (2012), the symptoms of depression and anxiety before and following birth are fairly common. Moreover, Lilja, Edhborg, Nissen (2012) argued that substantial evidence confirms that negative mental health of the mother significantly affects the child's development, the mother-baby bonding, and the family as a whole. Some studies, such as Reck, Struben, and Backenstrass (2008), have also identified a correlation between postpartum depression and PTSD. Nonetheless, depression, anxiety, and PTSD together during the perinatal phase have not been explored - as far as the researcher knows -, probably because most females experience complicated or combined symptoms that are difficult to recognise and differentiate. Hence, the aim of the present study is to examine the relationships between the symptoms of anxiety, depression and PTSD in the postpartum period concurrently.

1.14 Religion

Religion has been identified as a factor that affects the vulnerability a person experiences following exposure to a traumatic event (Park, 2005). Moreover, the strength of the religion or faith that a person possesses will contribute to the level of comfort they can draw upon from their religious beliefs (Drescher & Foy, 1995). A select number of studies have indicated that religion should be recognised as an important concept when attempting to understand how different people respond to traumatic exposure. For many individuals experiencing a significant negative event in life, religion can offer great comfort and focusing on it is a common behaviour (Zukerman & Korn, 2013; Gerber, Boals & Schuettler, 2011). Thus, there is an argument for there being a negative correlation between religious strength and PTSD. Despite the presence of research to support this argument (Ogland,1992), it would appear that there has been no research regarding individual

experiences of religion and PTSD following childbirth. Hence, one focus of this study is to explore whether an individual's religion can act as a protective factor against PTSD following childbirth.

More recent research has indicated that religiosity moderates the negative effects of traumatic event experiences. This research was designed to examine the relationship between post-traumatic stress (PTS) following traumatic event exposure; world assumptions and religious coping, which was conceptualised as drawing on religious beliefs and practices for understanding and dealing with life stressors. When an individual was identified as having positive religious coping, he/she more likely to have more positive world assumptions and vice versa. These findings suggest that religious-related cognitive schemas affect world assumptions by creating protective shields that can prevent the negative effects of confronting an extreme negative experience (Zukerman & Korn, 2013).

Furthermore, traits of insecure attachment and symptoms of PTSD were also found to be higher in those individuals with negative world assumptions. Thus, the authors concluded that world assumptions are directly affected by religiosity in that an individual's faith can help to protect him/her from distress after a negative experience (Zukerman & Korn, 2013). Another study carried out among Jewish people by Rosmarin, Pirutinsky, Pargament, and Krumrei (2009) showed that Jews with weak religious faith felt relatively more hopeless and stressed. Gerber, et al. (2011) found similar results in a study that utilised a sample of 1,016 participants, which found a strong association between positive religious coping and post-traumatic growth. On the other hand, research among veterans carried out by Resick, Monson and Chard (2008) found no significant association between religiosity coping and PTSD. However, Resick et al. (2008) reviewed the rates at which respondents sought counselling services as a proxy for measuring PTSD, rather than focusing on its symptoms. Whilst being relevant, the results derived from the study are not convincing

enough to overturn the findings of the other studies. The present study will involve exploring the role of religiosity in order to gain better understanding of its relation with the symptoms of PTSD following childbirth. Moreover, religiosity may be particularly important in explaining any cultural differences in PTSD experience between women in Britain and Saudi Arabia.

1.15 Social support

Earlier studies have found social support to be strongly associated with the development of PTSD following childbirth. One of the most relevant studies is that of Iles et al. (2011), who found a significant association between social support and symptoms of PTSD within couples. Essentially, the findings showed that PTSD symptoms were more prevalent among women who were less satisfied with their partner support (Iles et al., 2011). It confirmed the findings of earlier research by Moller, Hwang and Wickberg (2006), which found partner support to be essential for better mental health during marriage, transition to parenthood as well as during early postpartum. Moller et al. (2006) also found that individuals with secure attachment are more inclined to seek support from their partners, while insecure attachment may lead an individual to withdraw, thus reducing access to support. Generally, the secure attachment and support available to a woman from her partner might affect her psychological adjustment following childbirth (Moller et al., 2006).

According to Iles et al. (2011), it is not yet clear whether a partner's social support has an impact on the other partner's psychological adjustment, in suppressing depression and post-traumatic stress following childbirth. It is possible that a man who has insecure attachment with his partner does not provide the necessary support during times of difficulty, thus impacting on the psychological wellbeing of the partner. Ditzen et al. (2008) also found

insecure attachment and dissatisfaction with partner support to have a significant association with higher PTSD symptoms. Tsai, Harpaz-Rotem, Pietrzak, and Southwick (2012) found PTSD symptoms to be more prevalent among individuals with less social support, less cohesion in their families, greater difficulties in their relationships with partners, and lower life satisfaction. Lemola, Stadlmayr, and Grob (2007) elicited that women who were more satisfied with partner support were less likely to develop PTSD symptoms. The authors discovered that women who perceived their partners as providing adequate emotional support discussed with them their concerns and worries without fear of criticism. Various studies have also shown the significance of social support from friends and relatives (Mikulincer et al., 2006) as well as the wider community (Elsenbruch et al., 2006; Mikulincer & Shaver, 2001) in the development of PTSD symptoms. Accordingly, for the present study, one aim is to explore the role of social support in order to understand the effect of this factor on PTSD symptoms following childbirth in the two focal cultures.

1.16 Culture

According to In Avruch (1998), the term ‘culture’ refers to a combination of many concepts including religion and nationality. This concurs with Tyler’s definition that culture is a complicated amalgamation of knowledge, beliefs, art, morals, law, customs, and any other capabilities and habits acquired by an individual as a member of society. Culture is acknowledged as being a key influencer of PTSD symptoms. Alcantara et al. (2013) and Jones et al. (2003) have stated that one perspective of PTSD is that it is a condition created by culture, first emerging in the 1900s, chiefly in industrialised countries. Many cultures exhibit unique syndromes in response to trauma. These local cultural syndromes, in a general sense, form the PTSD and other trauma-related disorders. According to Olesen et al. (2012)

and Schwartz et al. (2000), based on cognitive behavioural models, by influencing the interpretation and appraisal of trauma-associated symptoms and the assessment of the long term effects of the trauma itself, cultural syndromes would be expected to lead to cross cultural differences in the prominence of PTSD clusters. These include not only the prominence of PTSD clusters (in DSM-IV-TR, re-experiencing, avoidance/numbing, and arousal), but also, the significance of individual PTSD symptoms, the comorbidity of PTSD and other symptoms or syndromes, such as panic attacks.

The extant studies have largely sought to determine the role of culture in the development of PTSD across Western and non-Western countries (e.g. Adewuya et al., 2005; Ayers & Smith, 2010, Hanlon et al., 2009; Nakku, Nakasi & Mirembe, 2006). Researchers have hypothesised that there are certain features that are present in non-Western cultures that make them distinct and that protect against the development of PTSD among women following childbirth. For example, Jones et al. (2003) maintained that in terms of PTSD, flashbacks are a Western cultural phenomenon. Other researchers, such as De Jong et al. (2003), have contended that standardisation of trauma responses is impossible due to the huge variances across time, place, and social subgroup. However, as discussed by Miller et al. (2009), others have proposed that whilst PTSD accurately describes some features of a universal trauma response, its clinical utility lags behind that of more local forms of expressing trauma-related psychopathology, including cultural syndromes.

Most PTSD theories and research have been created and conducted in Western cultures. Even within Western cultures, different cultures display diverse estimates of the prevalence of PTSD. A study by Lewis et al. (2010) of mental disorders in Europe determined that there are variances in PTSD prevalence (0.56% to 6.67% of the general population), with results from Croatia being ten times higher than for other European

countries. The countries with the highest occurrences of PTSD were the Netherlands, the UK, France and Germany, whereas the least were Spain and Switzerland. Thus, examining the symptoms of PTSD following childbirth in different cultures is necessary. In particular, there is a need for studies of the experiences of women in non-Western cultures. Given the lack of research examining PTSD following childbirth in Saudi Arabia, this study was aimed at exploring this phenomenon in this culture. However, because of the lack of existing data on such a sample, there were no specific expectations of the direction or magnitude of the differences that might be revealed.

In order to understand the differences between UK and Saudi Arabian culture, Hofstede (2001) reported four cultural dimensions as follows: Power Distance Index (PDI), which indicates the degree to which the society has an equitable distribution of power and income; Individualism (IDV), which refers to the degree to which a citizen's social standing is impacted on by their own actions; Masculinity (MAS), which illuminates the status of gender roles in the society; and the Uncertainty Avoidance Index (UAI), which indicates the degree to which the society relies on stringent legal and regulatory frameworks. The low IDV dimension value for the Saudi and the correspondingly high value for the UK indicate that these cultures are collectivistic and individualistic, respectively. With respect to the MAS dimension, the Saudi score of 54 and the UK's of 59 indicate that in terms of masculinity, these cultures are relatively similar. Regarding the UAI dimension, the high value for the Saudis (90) reflects the society's stringent reliance on legal, regulatory, and religious frameworks, whilst the UK (35) stands closer to the other end of the spectrum. For the last dimension, PDI, the UK's lower score (25) than the Saudi's comparatively high score (55) reveals that power and income inequality is not as pronounced in the former (see Figure 1.1).

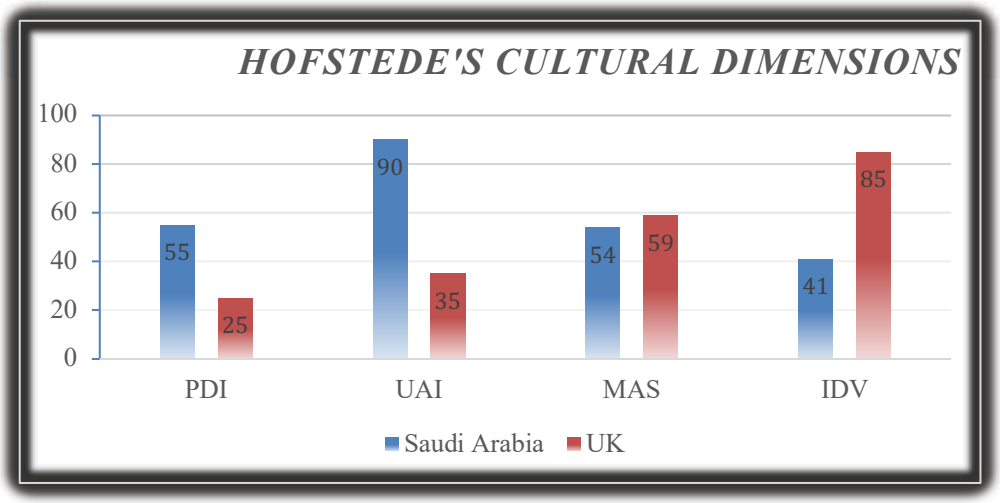


Figure 1.1. A comparison between Saudi Arabia and the UK for Hofstede"s Cultural Dimensions (from Hofstede, 2001; At-Tuwaijri, & Al-Muhaiza, 1996)

As reported by Hofstede (2001) and At-Twaijri and Al-Muhaiza (1996), the level of masculinity in the Saudi's culture is considerable, which reflects the way in which gender roles are unambiguously delineated between males and females. One manifestation of this can be seen in the way that the male partner in a marriage tends to focus on the public sphere, whereas his female partner concentrates on the domestic one. From an individualistic and collectivistic cultures perspective, those in the latter are expected to have social support and will pursue access to it, if readily available for them from their close associates following childbirth (Feng & Burleson, 2006). This might include mandated rest, assistance in doing household tasks from relatives and friends, rituals and other means as well as protective procedures to prevent harm to the new mother during a specific post-partum period (Hanlon et al, 2009). Such features may be absent in Western individualistic cultures.

It is unknown whether the cultural differences between Saudi Arabia and Britain have any effect on the development of PTSD following childbirth. A cross-cultural study

conducted in Israel attempted to find a correlation between the prevalence of PTSD symptoms and the factors that predict the symptoms post-childbirth. A group of 171 Jewish and Arab women in an area of Israel characterised by highly diverse ethnocultural groups was employed. The study included two time points (T1 and T2), with T1 interviews taking place 24-48 hours post-childbirth, and the T2 ones were conducted by phone six to eight weeks later. The results indicated no ethnic differences between the two groups and in fact, more similarities than variances were identified in relation to birth-experiences. There were also no differences found in the prevalence of PTSD symptoms post-birth. During the T1 interviews, 19.9% of participants (34 women) described their labour as traumatic, whilst during the T2 ones, 39.2% (67 participants) did so.

Moreover, the results signified that the development of PTSD following childbirth is significantly impacted upon by non-vaginal birth (instrumental or caesarean section) and negative memories of the childbirth experience (Halperin, Saris & Cwikel, 2014). Halperin et al.'s study compared two different groups with a different background (including differences in language and religion), but who were living in one region and similar living conditions within the same country. This may explain some of the similarities between the groups in that research. In the present study, the differences between women may be more evident as not only are UK and Saudi groups different in terms of language and religion, for they are also living in different geographical and cultural environments.

In addition, no previous study has paid attention to the role of all the factors identified in this thesis regarding PTSD following childbirth. However, in non-Western countries, there is one Iranian study, which was aimed at estimating the prevalence and looked at the different risk factors of PTSD following childbirth among 400 Iranian women within their first 6 to 8 weeks following childbirth. The PSS-I (Foa et al., 1993) was used to assess the

occurrence of PTSD following childbirth. The results indicated that 54.5% of the women had a traumatic delivery and 20% were found to be suffering from PTSD following childbirth. PTSD risk was associated with the women's education, age, labour duration, and delivery mode (Modarres, Afrasiabi, Rahnama, & Montazeri, 2012).

The present study is aimed at bridging this gap by exploring the differences between the two focal cultures in the development PTSD following and providing a more comprehensive understanding of the role of attachment, world assumptions, social support, religion and mental health in the development of PTSD following childbirth its impact on the process of bonding in both two cultures UK and Saudi women.

1.17 Aims of this thesis

This thesis is aimed at exploring the prevalence of PTSD following childbirth in Saudi Arabia and comparing this with the United Kingdom. A second aim is to review current PTSD measures that have been used to assess the disorder after childbirth and to identify a suitable one for use in this research. Third, the risk factors and association between assumption, religion, social support, anxiety, depression and PTSD following childbirth up to one year are explored. The fourth aim is to examine the role of adult attachment style in the development of PTSD following childbirth and its relationship with bonding. The fifth aim is to observe the changes in symptoms of PTSD, depression, anxiety, and social support over the two years post-childbirth. Finally, these factors are compared regarding two cultures: Saudi Arabia and the United Kingdom.

CHAPTER TWO

GENERAL METHODOLOGY

2.1 Introduction

This chapter provides explanation and justification of the methods employed for this thesis. The research designs of the three projects, the samples, and procedures are also described. The measures employed throughout this thesis will be explained and the data analysis approach is described.

2.2 Overall research design and strategy

The aims of this thesis were 1) to examine the prevalence of PTSD symptoms following childbirth among women in Saudi Arabia and compare this with a UK sample; 2) to review current PTSD measures that have been used to assess the disorder after childbirth and to identify the most suitable one for use in this research; 3) to investigate the risk factors and association between assumptions about justice, benevolence of people, randomness, benevolence of the world, self-worth, luck, self-controllability, religion, social support, anxiety, depression and PTSD following childbirth up to one year; 4) to examine the role of adult attachment style in the development of PTSD following childbirth and its relationship with bonding; and 5) to observe the changes in symptoms of PTSD, depression, anxiety, and social support over the two years post-childbirth. These factors were compared for two cultures, those of: Saudi Arabia and the United Kingdom.

This was achieved by three quantitative studies. Study 1 was a systematic review, which was aimed at identifying the PTSD measurement scales that have been used to assess PTSD following childbirth and to determine the highest quality measure for use in this

project. The methodology used to conduct the systematic review is presented separately, in the next chapter. This chapter focuses on the methodology used for Studies 2 and 3. Study 2 involved examining the prevalence of PTSD symptoms following childbirth in two cultures British and Saudi, and the overall contribution of attachment, assumptions, social support, religion and mental health (anxiety- depression) to the development of PTSD symptoms and its impact on the process of bonding between a mother and her baby. Study 3 was follow up work exploring the changes over time in PTSD symptoms following childbirth in both countries (see Figure 2.1).

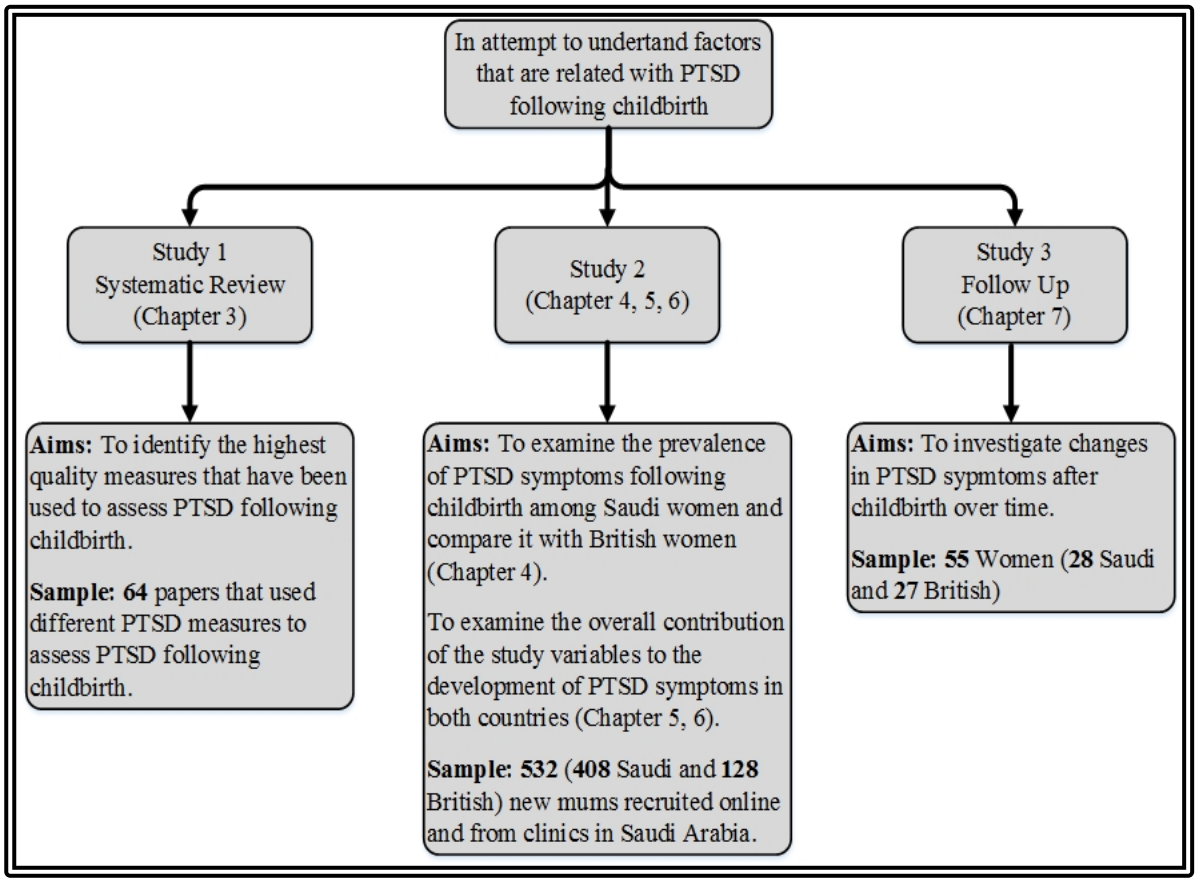


Figure 2.1. The visual outline of the studies

2.3 Recruitment

Once ethical permission had been obtained from the ethical review board at the University of Birmingham (ERN-13-0931) (see Appendix A-1 for the ethics approval),

participants were recruited. They were new mums and had given birth in the last year at the time of recruitment and were included whether or not they had experienced a traumatic birth, a difficult or normal labour, or experienced negative emotions following childbirth. They were recruited through several methods, including: online; at parenting groups, kids clubs and church groups; as well as on Facebook along with other social media, such as twitter /WhatsApp groups, (UK and Saudi Arabia). Also, participants were recruited through the University of Birmingham 'Babylab' (UK only) and in clinics (Saudi Arabia only). There were no differences between the online and paper recruitment methods, which were used to facilitate access to a larger sample of participants who preferred to complete paper versions of the measures. However, this matter was considered in terms of potential sources of difference, but no variances were revealed that would have prevented the combining of these data together. Participation in these studies was voluntary and hence, the results of projects presented within this thesis could have been affected by some personal bias. A wide range of methods was employed for recruitment to increase the range of socioeconomic and ethnic backgrounds of the participants. The recruitment process occurred in several stages between January 2014 and November 2014. During this period, 1,057 questionnaires were submitted online by the participants. Figure 2.2 shows the recruitment stages and sample size (see Figure 2.2.).

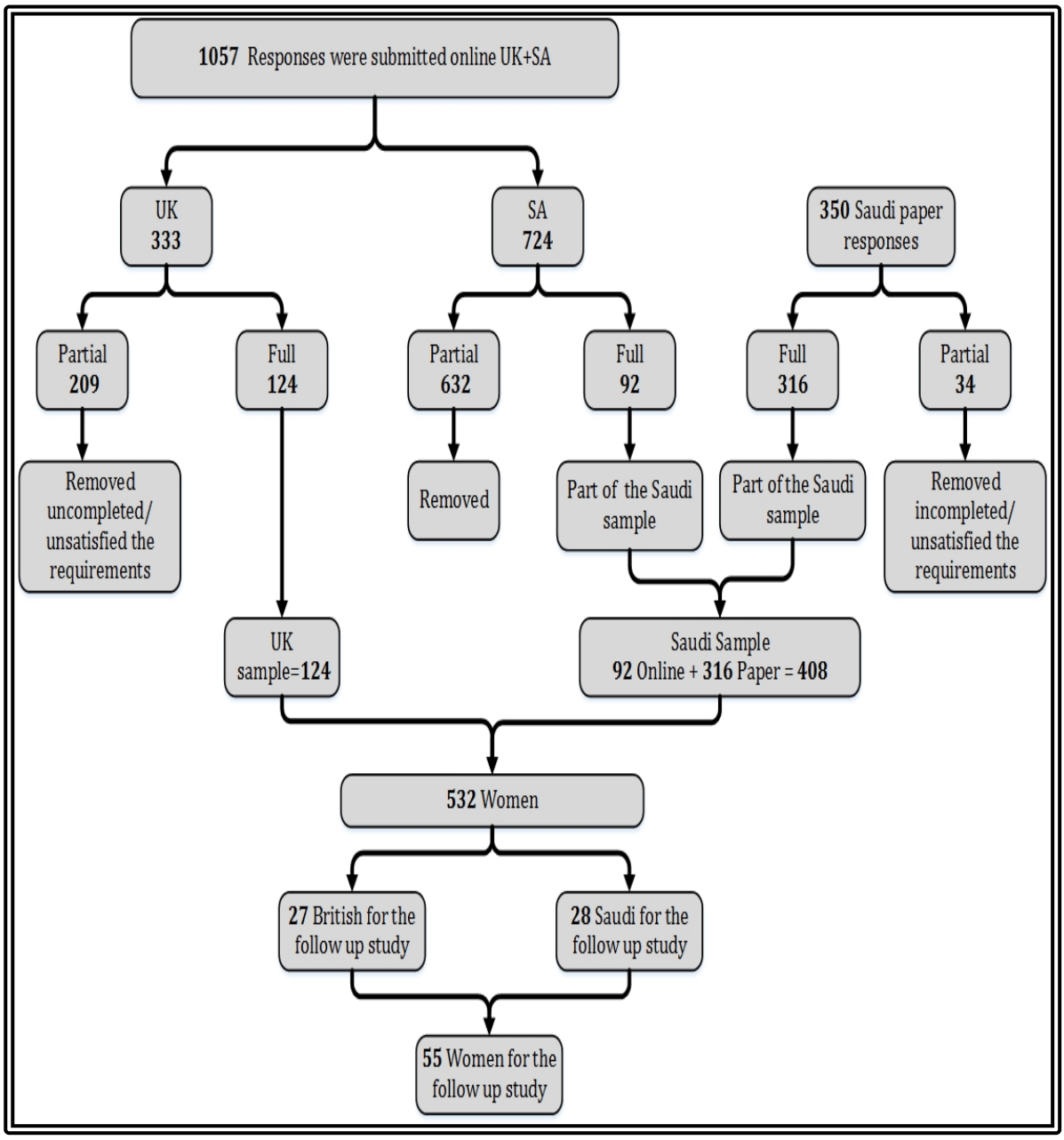


Figure 2.2. The recruitment stages and the sample size

2.3.1 - For the British sample

The first stage was to advertise the study on parenting websites, Facebook, twitter, WhatsApp groups and charities' sites (see Appendix A-2 for online advertising). In the second stage, nurseries, 15 kids clubs, and churches around Birmingham were contacted,

with leaflets being posted on their noticeboards and handed out physically (see Appendix A-3 for the leaflets for the nurseries and parenting groups). Also, participants were recruited through the University of Birmingham's Babylab, which has information on families with parents who have indicated an interest in research participation at the University. Once individuals were identified, they were contacted via email or phone. The British sample (n=124) women were recruited primarily online and through leaflet advertisements placed on well-known social and national organisations' websites with the permission of the organisers (Birth Trauma Association (BTA); Pandas foundation; Petals Charity; Bounty; Mums Net; and paid advertising on Net Mums). Similarly, Facebook-based perinatal groups (PTSD following childbirth or parenting trauma) were also asked to advertise the study's link on their group's page.

Information about the study was provided on a designated web site (Lime Survey), which included a link to consent forms and the questionnaire. The study questionnaires were made available online from January 2014 to November 2014 for anonymous online submissions on a secure web site hosted by the University of Birmingham (see Appendix A-4 for the information sheets.).

2.3.2 - For the Saudi sample

The Saudi sample (n=408) consisted of 92 online responses and 316 from clinics (see Figure 2.2.). These were combined into one group because there were no major differences between the online and the clinic responses. The first stage of recruitment was to advertise the study on a Saudi parenting website along with distribution via WhatsApp and Twitter (see Appendix B-1 for the Arabic online advertising). Second, several obstetrics and gynecology clinics and hospitals in Saudi Arabia-Riyadh were contacted to request permission to recruit from their clients. Local procedures for access, permission and ethics

were adhered to. Six hospitals were contacted and three provided permission to have access: [redacted]. Recruitment was also undertaken in person from September 2014 to November 2014 through attending obstetrics and gynecology clinics' waiting areas and asking new mums to complete the questionnaire. Before they were given the questionnaire, they were given information about the study and asked to sign a consent form to participate (see Appendix B-3 for the Arabic information sheets).

2.3.3 - For the follow up study

Participants were recruited from the original sample for this project (see Study 2) after ethical approval was obtained from the ethical review board at the University of Birmingham ERN_13-0931C (see Appendix A-6 for the follow up ethics approval). The women consented to participate in the original study and volunteered their contact details to allow us to approach them for a follow-up study. However, these women had not consented to participate in a follow up study and thus, a new information sheet and consent form for the new study had to be sent and completed. This consent form emphasised the fact that further participation was voluntary (see Appendix A-7 for the follow up study information sheets /B-4 for the Arabic version).

200 (106 Saudi and 94 British) women from the original sample of 530 women provided their contact information to participate in future research. These women were contacted via their preferred method of contact (emails or text/messages) and those that responded were sent an ID code to enter into the new questionnaire that linked the participant's previous data with any follow up data. Personally sensitive information was not sent in emails or stored with the questionnaire data (existing or new). Once the participants had been contacted for follow-up, all the information about their contact details was

destroyed. 55 (28 Saudi and 27 British) women responded to the email, sent their consent form and completed the follow up measures (see Figure 2.2.).

2.4 Demographics

The participants of Study 2 consisted of 532 (408 Saudi and 124 British) women, who had given birth for first time in the last year. The demographic characteristics of the main sample can be seen in Table 2.1. The majority of the participants had a university or college degree and were married. Job status of the participants varied from unemployed to employed full-time. The majority of had had a normal vaginal delivery (63.8%). Almost equal numbers responded that they had experienced natural contraction (52.7%) or induced contraction (43.6%). 28.7% of the women reported that they had not used any pain relievers during the birth, whilst 21.9% indicated that they had used Entonox. 36.3% of the participants were in their last quarter of the first year following childbirth. 13.4% had experienced a prior abortion. 10.7% declared that they had previous psychological difficulty.

Household income was low in the Saudi sample. Most of the Saudi sample were Saudi, whilst the remainder were from gulf countries (Bahrain; Oman), Arabic countries (Egypt; Syria; Jordan; Iraqi; Sudan; Yemen; Palestine) and African countries (Eritrea; Somalia; Chad). 99.8% were Muslims. Household income was average in UK sample. Most of the British sample was British white background and the remainder were from mixed ethnic groups. The majority of the participants (54.0%) were Christian, whilst 46.0% indicated that they had no religion. The descriptive characteristics of the follow up study sample will be presented in Chapter 7.

Table 2. 1
Demographic characteristics of the main sample

V	Subscales	Saudi		British		WholeSample	
		N	%	N	%	N	%
Education	Less than high school	36	8.8	1	.8	37	7.0
	High school graduate	119	29.2	4	3.2	123	23.2
	University/college	216	53.0	49	39.5	265	49.8
	Post graduate degree	33	8.1	53	42.8	86	16.1
	Other (Trade/technical/ training/diploma)	4	0.9	17	13.7	21	3.9
Occupation	Unemployed	222	54.8	6	4.9	228	43.2
	Employed full time	92	22.7	90	73.2	182	34.5
	Employed part time	21	5.2	11	8.9	32	6.1
	Self employed	20	4.9	6	4.9	26	4.9
	Student	47	11.6	3	2.4	50	9.5
	Retired	1	0.2	7	5.7	8	1.5
	Other	2	0.5	0	0	2	0.4
House hold income	Low (Under £30,000)	143	45.4	28	22.5	171	39.2
	Average (£30,000 - £45,000)	102	32.4	34	28.1	136	31.2
	Above average (£45,000 - £60,000)	44	14.0	21	17.4	65	14.9
	High (£60,000 - £75,000)	15	4.8	14	11.6	29	6.7
	Very high (£75,000+)	9	2.9	24	19.8	33	8.0
Delivery type	Normal vaginal delivery	285	69.9	54	43.5	339	63.8
	Caesarean section	105	25.7	36	29.0	141	26.6
	Assisted delivery	17	4.2	32	25.8	49	9.2
	Other	0	0	2	1.6	2	.4
Contractin	Natural Contraction	40	36.4	47	85.5	87	52.7
	Induced Contraction	64	58.2	8	14.5	72	43.6
	Natural + Induced	6	5.5	0	0	6	3.6
Using pain relievers	Nothing	139	35.1	9	7.5	148	28.7
	Hydrotherapy	4	1.0	13	10.8	17	3.3
	Gas and air (entomic)	84	21.2	29	24.2	113	21.9
	Pethidine injections	77	19.4	15	11.7	92	17.8
	Epidural anaesthesia	77	19.4	47	39.2	124	24.0
	Mix of 2+5	0	0	4	3.3	4	0.8
	Other	15	3.8	3	2.5	18	3.5

Table 2. 2
Demographic characteristics of the main sample

V	Subscales	Saudi		British		Whole Sample	
		N	%	N	%	N	%
Abortion	No	352	86.5	108	87.1	460	86.6
	Yes	55	13.5	16	12.9	71	13.4
Psychological difficulty	No	381	93.4	94	75.8	475	89.3
	Yes	27	6.6	30	24.2	57	10.7
The time passed since the birth	Less than one month	82	20.5	10	8.1	92	17.6
	1 to less than 3 months	37	9.3	17	13.7	54	10.3
	3 to less than 6 months	62	15.5	26	21.0	88	16.8
	6 to less than 9 months	71	17.8	29	23.4	100	19.1
	9 to 12 months	148	37.0	42	33.9	190	36.3

Saudi				British		
Marital status	Married	356	87.3	Married	81	65.3
	Separated without divorce	24	5.9			
	Separated with divorced after birth	6	1.5	Single	8	6.5
	Separated, back after birth	8	2.0	Partnership	35	28.2
	Widowed	14	3.4			
Religion	Have religion (Muslim)	402	99.8	Have religion	67	54
	No religion	0	0	No religion	54	46

British Ethnicity		
British white background	105	84.7
Mixed / Multiple ethnic groups (White and Asian)	4	3.2
Asian / Asian British (Indian - Pakistani -Bangladeshi -Chinese)	4	3.2
Black / African / Caribbean / Black British	2	1.6
Other	9	7.3

Saudi Sample Nationality					
Saudi	328	82.4	Sudanese	8	2.0
Gulf	5	1.3	Eritrean	1	0.3
Egyptian	18	4.5	Somalian	3	0.8
Syrian	9	2.3	Chadian	3	0.8
Jordanian	12	3.0	Palestinian	3	0.8
Iraqi	5	1.3	Yemeni	2	0.5

Note: Whole Samp (N=532), Saudi sample (N=408), British sample (N=124)

2.4 Procedures

A secure communication protocol was used for the online questionnaire and the collected data were managed by the University of Birmingham's secure server. There were two versions of the survey: one in English and the other in Arabic. The researcher translated the survey comprising seven English questionnaires, instructions, and information sheet into Arabic and then a bilingual psychologist translated the scale back into English to check that the translation was valid. Participants were provided with the information sheet for the study (See Appendix A-4 for information sheet) and asked for their consent to engage in the study. They did so anonymously and had the option to stop participating at any time. They were also asked to leave their contact information, if they wanted to enter a prize draw or to participate in a future study. At the end of the survey, the participants were provided with debriefing information (see Appendix A-5). This provided links for resources that they might want to access, in case engaging in the research had reminded them of past negative experiences or overwhelmed them in any way.

For the follow-up study, the questionnaires were made available on the Internet from March 2016 to June 2016, almost one and a half years after the end of the previous recruitment period (November 2014). The study's leaflet and information documents (See Appendix A-7) were provided on a designated website (Lime Survey), which also included a link to a secure website hosted by the University of Birmingham. The study's questionnaires were then available for anonymous online submissions on this secure web site.

2.5 Measures used

2.5.1 Demographics

A demographics questionnaire was designed by the researcher, which asked the participants questions regarding their date of birth, highest level of education, marital status, employment status, ethnicity, annual household income, religious preference, delivery type, whether pain relievers had been used during childbirth, abortion experience and experience of any psychological difficulty (see Appendix A-8 for the demographics questionnaire/B-6 for the Arabic version).

2.5.2 Posttraumatic Stress Disorder (PTSD)

The Posttraumatic Stress Diagnostic Scale (PDS; Foa, 1995 – see Appendix A-9/B-8 for the Arabic version) is a 49 item measure that produces a clinical diagnosis of PTSD, as well as a symptom score. It has been used with women following traumatic childbirth (Harris & Ayers, 2012; Ford & Ayers, 2011; Alcorn et al., 2010). The initial scale questions individuals about whether they encountered numerous traumatic situations before requesting that they focus on the most traumatic situation. In the current study, the participants were questioned regarding their childbirth experiences and the degree of difficulty that they had encountered. It has six subscales: re-experiencing symptoms (1-5),"Having upsetting thoughts or images about the traumatic event that came into your head when you didn't want them to"; avoidance symptoms (6-12), "Trying to avoid activities, people, or places that remind you of the childbirth event"; symptoms of hyper arousal (13-17), "Having trouble falling or staying asleep"; duration (18-19), "How long after the childbirth event did these problems begin? "; and significant impairment in functioning (20-28), "Have the problems we just discussed interfered with your work? ". The response choices include: ‘Not at all or only one time’ (0); ‘Once a week or less/once in a while’ (1); ‘2 to 4 times a week/half the time’ (2); and ‘5 or more times a week/almost always’ (3). The scale concludes by evaluating

the degree to which PTSD impacted on various aspects of the individuals' daily routines. The overall PTSD symptom score was then calculated by including the rate of occurrence of these symptoms throughout the past year. The PTSD 'diagnostic' was generated by assessing each of the six PTSD criteria that were necessary for a clinical diagnosis that are identified in the DSM-IV-TR. To be classified as 'reaching PTSD criteria', the participant had to report: (a) one or more symptoms of re-experiencing in the last year; (b) three or more symptoms of avoidance in the last year; (c) two or more symptoms of hyper arousal in the last year; (d) a duration of symptoms of at least one month; and (e) significant impairment in functioning as a result of the above symptoms. Those participants who met all of the six criteria were identified as having a potential PTSD clinical diagnosis.

For this study, the Cronbach's alpha scores indicated a good internal consistency for both the Saudi and British sample (.94) of the overall PTSD scale, which is similar to the alpha value in the PDS's original validation (Foa, 1995) of .92. The subscales are less reliable, but still acceptable with an alpha of .78 for the re-experiencing symptoms subscale, .84 for that of avoidance symptoms, and .84 for the hyper arousal symptoms (for this study's subscales Cronbach's alpha scores, see table 2.2). The original scale has been demonstrated to have good test-retest reliability for diagnosis (87%) and for the symptom severity score (83%). This scale has additionally revealed strong correlations with other measures of PTSD and mental health. For instance, the agreement between PDS and the Structured Clinical Interview for DSM (SCID: Spitzer et al., 1992) was 82% (Foa, 1995). The sensitivity was estimated at 89% and specificity was at 75%. Concurrent validity was found with the Beck Depression Inventory (.79), the State Anxiety Inventory-State (.73), The Trait Anxiety Inventory-Trait (.74), and the Impact of Events Scale (.78) (Foa, 1995).

2.5.3 World Assumptions

The World Assumption Scale (WAS; Janoff-Bulman, 1989– see Appendix A-10/B-

9 for the Arabic version) was created by Janoff-Bulman (1989). It has 32 items that evaluate the degree to which participants agree with statements in eight subscales included in the measure: benevolence of the world (5-9-25-30), "The good things that happen in this world far outnumber the bad"; benevolence of people (2-4-12-26), "People are naturally unfriendly and unkind"; justice (1-7-14-19) ,"Misfortune is least likely to strike worthy, decent people"; controllability (11-20-22-29), "People's misfortunes result from mistakes they have made"; randomness (3-6-15-24), "Bad events are distributed to people at random"; self-worth (8-18-28-31), "I often think I am no good at all"; self-controllability (13-17-21-23), "Usually I behave in ways that are likely to maximize good results for me"; and luck (10-16-27-32), "I am basically a lucky person". Response choices include: 'strongly disagree' (1); 'disagree' (2); 'somewhat disagree' (3); 'somewhat agree' (4); 'agree' (5); and 'strongly agree' (6). The overall WAS score is created by summing the items responses and the subscale scores are generated by summing the subscale items' responses (Janoff-Bulman, 1989). The scale was initially created according to the eight presumptions that Janoff-Bulman suggested within the model of basic world assumptions. Initial analyses of 356 undergraduate students (212 females, 144 males) revealed that the scale could be reduced from 64 to 32 items and could differentiate between people who had and had not experienced trauma. It has been used with women suffering from PTSD after intimate partner violence (Lilly, 2008), but not applied in the case of following childbirth. Reliability was between (.66 to .76) and the validity was obtained by the factor analyses of the items, which were almost identical to that proposed (Janoff-Bulman, 1989). For this study, the WAS Cronbach's alpha scores indicated a higher internal consistency for the Saudi sample (0.95) than the British one (0.80) regarding the overall scale. The scale is sufficiently reliable. (For the subscales Cronbach's alpha scores see table 2.2).

2.5.4 Religiosity

The Multidimensional Measure of Religious Involvement (MMRI; Levin, Chatters, & Taylor, 1995; Appendix A-11/B-10 for the Arabic version) is composed of 12 items that measure factors of an individual's engagement with religion. Participants' reaction options encompass questions about their religious practice ranging from never (0) to daily (4), yes (1) or no (0), a 5-point Likert scales varying from not at all (0) to very religious (4) and questions assessing their feelings regarding being religious. The scale has three subscales: organised religiosity (1-5); non-organised religiosity (6-9); and subjective religiosity (10-12). Examples of items include: 'how often do you usually attend religious services?' (organised religiosity); 'how often do you ask someone to pray for you?' (non-organised religiosity); and 'How religious would you say you are?' (subjective religiosity). The overall score is obtained by summing all the items' values and the subscale scores are generated by totalling the subscale item responses. The original study of the scale showed good reliability, with a Cronbach's alpha of .83 for the entire scale. For this study, the MMRI Cronbach's alpha scores indicated an adequate internal consistency for the Saudi sample (0.71) and good reliability for the British one (0.90). However, the 'organised religiosity' alpha is low for both samples (0.46). For the subscale Cronbach's alpha scores see table 2.2.

2.5.5 Social Support

The Multidimensional Profile of Social Support (MSPSS; Zimet, Dahlem, Zimet, & Farley, 1988; Appendix A-12/B-11 for the Arabic version) is a 12 item scale with three subscales, which computes the perceptions of social support from the individual's family (3-4-8-11), friends (6-7-9-12), and significant others' (1-2-5-10). Examples of items include: 'There is a special person who is around when I am in need' (significant other); 'My family really tries to help me' (family); and 'My friends really try to help me' (friends). Participants

respond to questions on a seven point Likert scale ranging from very strongly disagree to very strongly agree. The overall score is achieved by summing all the items' values and the subscale scores are generated by totalling the subscale item responses. The MPSS's reliability and validity have been proven amongst several populations, including students (Dahlem, Zimet, & Walker, 1991), a group of 265 pregnant females, 74 European teenagers residing with their families, and 55 paediatric residents (Zimet, Powell, Farley, Werkman, & Berkoff, 1990). Moreover, it has been demonstrated to have good internal reliability within numerous populations. For this study, the MSPSS Cronbach's alpha scores indicated good internal consistency for the Saudi sample (0.92) and the British one (0.96). For the subscale Cronbach's alpha scores, see table 2.2.

2.5.6 Attachment

The Revised Adult Attachment Scale (RAAS; Collins, 1996 - see Appendix A-13/B-12 for the Arabic version) is an 18 item self-report scale that requests individuals to rate statements regarding their daily operations, relationships, and overall associations with a partner, someone close, and people, in general, on the five-point Likert scale ranging from not at all (1) to very characteristic (5). The initial Adult Attachment Scale proposed by Collins in 1990 was aimed at explaining an individual's attachment and romantic emotions. The author re-examined this scale in 1996 and created a new version to include an individual's perception of intimate connections, including significant people like family members, significant others, or close friends.

This scale has three subscales of closeness (1-6-8-12-13-17), dependence (2-5-7-14-16-18), and anxiety (3-4-9-10-11-15) that include six items each. The closeness subscale quantifies the degree to which an individual is at ease being close and caring with another individual, whereas the dependence subscale quantifies the degree to which the individual thinks that they can rely on others for support. Whilst he anxiety sub-scale quantifies the

degree to which the individual is concerned about not having support or relationships. Examples of items include: ‘I find it relatively easy to get close to people’ (closeness); ‘I often worry that other people don't really love me’ (anxiety); and ‘I find it difficult to allow myself to depend on others’ (dependence). The scores are generated by summing the item responses for each sub-scale. Cronbach's alpha coefficients have previously been reported of .69 for closeness, .75 for dependence, and .72 for anxiety, thus indicating a reliable measure (Collins &Read, 1990). In this study, for the Saudi sample, the Cronbach’s alpha scores were .63 for closeness, .51 for dependence, and .89 for anxiety, thereby inferring acceptable reliability. For the British sample, the Cronbach’s alpha scores were .76 for closeness, .82 for dependence, and .92 for anxiety, also suggesting this is a reliable measure. (Table 2.2).

2.5.7 Bonding

The quality of mother-infant bonding was measured by the Maternal Postnatal Attachment Scale (MPAS; Condon & Corkindale, 1998 - see Appendix A-14/B-13 for the Arabic version). This scale comprises 19 questions that categorised into three subscales: quality of attachment; absence of hostility; and pleasure in interaction. Absence of hostility can be defined as the lack of anger or hatred towards the baby, a lack of perceiving the baby as challenging, an absence of dissatisfaction regarding the infants' effects on the parents' lives, and typically being at ease while engaging with the child. Quality of attachment can be defined as the degree of self-confidence, ability, and happiness of motherhood as well as identifying the baby as hers. This also includes the mother’s opinion of her own patience with the baby. Pleasure in interaction can be defined as a mother’s eagerness to be close to the child and pleasure from engaging with the him/her. This includes an eagerness to spend a greater amount of time with the baby and not wanting to be away instead of feeling bored (Condon et al., 1989).

It should be noted that the three indicators of the mother-infant bonding subscales were redefined by Condon & Corkindale, 1998) with the different terms of: acceptance and tolerance (absence of hostility in MPAS); 'pleasure in proximity' (pleasure in interaction in MPAS); and 'competence as a parent' (quality of attachment in MPAS). Some of these items begin with part a statement and then provide several options for concluding it. For instance, this questionnaire includes a statement. such as "I now think of the baby as..." in which the mother can choose between the options 'very much my own baby', 'a bit like my own baby' or 'not yet really my own baby', to finish the sentence. The additional questions can be answered using a numbered point scale; for instance, "When I'm taking care of the baby, I get feelings of annoyance or irritation", and the mother will then select the most appropriate answer 'very frequently', 'frequently', 'occasionally', 'very rarely' and 'never'. Items 3,4,5,6,7,10,14,18, and 19 are relevant to assessing quality of attachment, with 7,10, and 14 being reverse scored. Hence, the lowest and highest scores for this section are nine and 45, respectively. Questions 1,2,15,16, and 17 are applicable for absence of hostility, with the lowest and highest scores for this being five and 25, respectively. Questions 8,9,11,12, and 13 measure the pleasure in interaction with the child, for which the lowest and highest scores are five and 25. The overall score is obtained by summing all the items' values and the subscale scores are generated by totalling subscal items' responses. According to Condon and Corkindale (1998), the MPAS's validity and reliability have not been completely confirmed. However, for this study, the MPAS Cronbach's alpha scores indicated an internal consistency for both samples; .68 for the Saudi and .81 for British regarding the overall scale, which are acceptable values. However, the 'quality of attachment' alpha is low for the Saudi sample (0.46), whilst'absence of hostility' for the British sample is (0.47). For the subscales Cronbach's alpha scores see table 2.2.

2.5.8 Mental Health

The Hospital Anxiety and Depression Scale (HADS; Zigmond & Snaith,1983; Appendix A-15/ B-14 for the Arabic version) was employed to quantify an individual's mental health status. The HADS consists of 14 questions, equally divided between two subscales of anxiety (1-3-5-7-9-11-13) and depression (2-4-6-8-10-12-14). The questions were originally created through employing an evaluation of the catalogued surveys of mental health patients (Zigmond & Snaith, 1983). Every response is scored between 0 and 3, indicating the severity of the individual's emotions. Examples of the items include: 'I feel tense or 'wound up'' (anxiety); and 'I still enjoy the things I used to enjoy'; (depression). This scale can be completed in two to five minutes. It is scored by summing the items within each subscale with a score between 0 to 21 thus being possible and the greater the scores, the greater the indication of anxiety or depression. Snaith and Zigmond (1994) list four ranges of scores: 'normal' being between 0 and 7, 'mild' between 8 and 10, 'moderate' between 11 and 14, and 'severe' between 15 and 21. These scores ultimately represent the acuteness of the individual's anxiety or depression. For this study the HADS Cronbach's alpha score indicated an internal consistency for the Saudi sample (.90) and British one (.87) regarding the overall scale. For the subscale Cronbach's alpha scores, see table 2.2.

2.5.9 Reliability of the measurements

The results of the reliability analyses for the measures used within this thesis are presented in Table 2.2.

Table2.2
Alpha for the measurements in both samples

Subscale	N of items	Saudi			British		
		α	M	SD	α	M	D
PTSD (PDS)	17	.94	11.60	12.11	.94	19.70	13.16
Re-experience	5	.91	2.93	3.81	.88	4.47	4.68
Avoidance	7	.89	4.97	5.62	.86	6.17	5.59
Hyper arousal	5	.89	3.97	4.39	.89	5.07	4.25
Attachment (RAAS)							
Closeness	6	.63	16.70	4.38	.76	22.47	4.49
Dependence	6	.51	16.96	3.82	.82	18.87	5.30
Anxiety	6	.89	16.81	6.10	.92	14.67	6.56
Assumption (WAS)	32	.95	125.6	29.39	.80	113.29	16.48
Justice	4	.77	16.52	4.45	.65	12.00	3.97
Benevolence of people	4	.78	16.43	4.43	.79	14.00	2.19
Randomness	4	.82	16.54	4.62	.71	15.68	4.57
Benevolence of world	4	.81	15.39	4.49	.88	16.11	4.25
Controllability	4	.65	16.32	3.85	.81	12.00	4.19
Luck	4	.80	15.59	4.41	.87	15.14	4.76
Self worth	4	.59	13.75	4.16	.53	11.38	3.31
Self controllability	4	.74	16.64	3.97	.71	16.00	3.48
Religiosity (MMRI)	12	.71	17.89	6.44	.90	8.64	8.31
Organised religiosity	5	.46	4.18	2.55	.45	3.27	2.09
Non-organized	4	.68	9.86	3.53	.90	2.43	3.88
Subjective religiosity	3	.68	4.11	2.79	.84	3.14	3.40
Social support (MSPSS)	12	.92	51.82	16.73	.96	68.30	16.82
Family	4	.83	17.10	5.86	.95	21.65	6.65
Friends	4	.72	18.00	5.12	.98	21.60	7.22
Significant other	4	.94	15.83	8.42	.98	25.05	4.85
Bonding (MPAS)	19	.68	57.63	6.59	.81	63.00	7.00
Quality of attachment	9	.46	29.50	3.63	.67	14.47	2.17
Absence of hostility	5	.54	12.36	3.18	.47	15.42	1.39
Pleasure in interaction	5	.65	12.75	2.64	.72	33.84	3.94
Mental Health (HADS)	14	.90	21.86	8.155	.87	17.50	7.18
Anxiety	7	.85	10.75	4.27	.85	10.00	4.40
Depression	7	.86	11.11	4.60	.74	7.50	3.47

**Note: α = Cronbach's alpha; M= mean; SD = Standard deviation.*

2.5.10 Questionnaires for the follow up study

The women were asked to repeat three questionnaires that they had completed during the first study, including the: Posttraumatic Stress Diagnostic Scale (PDS: Foa, 1995); Hospital Anxiety and Depression Scale (HADS: Zigmond & Snaith.1983); and the Multidimensional Profile of Social Support (MSPSS: Zimet, Dahlem, Zimet, & Farley, 1988). In addition, they were asked to provide demographics information (see Appendix A-16/ B-6 for the Arabic version) and to write about their birthing experiences and adjustment in an open response (see Appendix A-17/ /B-5 for the Arabic version). However, because of lack of time for analysis, in this thesis, the responses to the open questions are not considered any further.

2.6 General data analysis strategy

2.6.1 Missing Data

Examination of the data showed almost none were missing, this being because of the mandatory settings of the survey, which prevented a participant from continuing, if she missed any of the responses. However, there were many uncompleted responses (Saudi: 632 from the 724 total and UK: 231 from the 333 total) and these incomplete surveys were deleted from the database.

2.6.2 Data analysis

SPSS version 23 statistical software was used to analyse the data. Kolmogorov – Smirnov (K-S) tests carried out and showed that the data were non-normally distributed. Hence, non-parametric tests were used where appropriate. By running boxplots, three cases were excluded (participant numbers: 307,186,181) due to consistent outliers across a number of variables. Initially, descriptive statistics for demographics (categorical/nominal

variables) were calculated by percentage and frequencies. Continuous variables (questionnaire subscales) were explored using range, mean and standard deviation. The differences between Saudi and British samples in terms of the categorical variables were explored using chi-squared analyses, whilst for the continuous variables the Mann-Whitney (Chapter 4) test was deployed. Spearman correlations were undertaken to examine the relationships between the PTSD scores and the attachment subscales, bonding, assumptions, religion, and social support (Chapters 5, 6 and 7). Moreover, a stepwise multiple regression was run to predict PTSD scores from the study variables (Chapter 5, 7), despite the non-normal distribution of the data, because of the lack of a non-parametric equivalent.

CHAPTER THREE
A SYSTEMATIC REVIEW OF THE SCALES TO MEASURE PTSD FOLLOWING CHILDBIRTH

3.1 Abstract

Research interest in post-traumatic stress disorder (PTSD) following childbirth is growing. A number of scales have been developed to assess PTSD symptoms following birth. These scales vary in terms of the quality of psychometric properties and thus, the judgment on which type of questionnaire is best for a study is challenging. The aim of this review is to make recommendations for ongoing research by identifying and evaluating measurement scales that have been used to evaluate PTSD following childbirth by assessing their psychometric stringency. A systematic review methodology based on the Centre for Reviews and Dissemination CRD guidance (NHS, 2008) was used to identify scales that have been used to measure PTSD in women following childbirth, in general and clinical populations. Four electronic databases were searched and the reference lists of all the identified papers were then manually searched. The focus was on identifying peer reviewed journal articles where PTSD following childbirth was the key concern. Fourteen PTSD measures were identified and reviewed, with four of these being about modifications to an original measure. Overall, the Posttraumatic Diagnostic Scale (PDS: Foa et al., 1997) received the best psychometric ratings. The Impact of Event Scale (IES: Horowitz et al., 1979) has some limitations in assessing PTSD due to its failure to cover all PTSD diagnostic criteria. Given the increasing interest in PTSD following childbirth, researchers are advised to update the PTSD scales in line with the new version of DSM-V.

3.2 Introduction

Posttraumatic stress disorder (PTSD) is a reaction to an experience deemed traumatic, frightening or life threatening for an individual, or an individual close to them. Most commonly, it is seen following military combat, terrorism attacks or natural disasters; however, there have been a number of instances of women developing symptoms following childbirth consistent with PTSD (Wijma et al., 1997; Ayers & Pickering, 2001). This can be due to the birth being traumatic or life threatening for themselves, or their baby. Alternatively, some women may develop PTSD despite their birth being uneventful, due to feeling a loss of control or dignity (Beck, 2004).

In 1994, childbirth was included within the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) as an officially recognised cause of PTSD (APA, 1994). Yet, the disorder was actually first defined by DSM-III in 1980 (APA, 1980). At present, there is a growing consensus that researchers and practitioners should construct a strong model, which can be used to evaluate the symptoms associated with PTSD following childbirth and provide greater understanding of these symptoms.

For the diagnosis of PTSD, as for the majority of clinical diagnoses, psychological assessment plays a vital role. It provides information relating to the construction of causal frameworks for disorders, intervention schemes, prediction of future behaviours, and for the assessment of treatment effects. Thus, clinical diagnoses are very much affected by the assessment tools used to provide the information on which the decisions are founded in the first place (Haynes et al., 1995).

Over the past three decades, the number of PTSD questionnaires used by clinical health practitioners and researchers has significantly increased. These are varied and differ in their focus in two main ways. Firstly, the type of trauma exposure varies across th

measures, with some examining exposure to general traumatic events (Foa et al., 1997; Horowitz, Wilner, & Alvarez, 1979), whilst others focus on exposure to a specific trauma (Wijma et al., 1997; Czarnocka & Slade, 2000; Sorenson, 2000b. 2003). Second, the number of PTSD criteria that are measured varies: some are used to assess PTSD profiles (e.g. PDS: Foa et al., 1997) and some do not assess all the criteria for a diagnosis of PTSD (e.g. IES; Horowitz et al., 1979). Hence, the judgement on which type of questionnaire is best for researching PTSD following birth is challenging.

Within the relevant literature, PTSD following birth has been evaluated via the use of both general PTSD questionnaires and those that are more concerned with the specific link between childbirth and PTSD. As such, this has resulted in confusion regarding which measures are the most effective, and which will offer the most accurate outcomes (for example, in predictions of prevalence figures). The prevalence of a PTSD profile has been evidenced as being reduced by less than 1.9% at a period of eight weeks, following childbirth, by using general traumatic scales (TES) (Soet et al., 2003). However, it has been found that the prevalence is increased by 3% at a period of six weeks, following childbirth, after utilising a more specific questionnaire (linked with childbirth) (Czarnocka & Slade, 2000).

The majority of the available tools produce suitably effective psychometric outcomes, but they do often vary widely in terms of the administration time and the trauma populations for which they were originally constructed. As there are so many different resources on offer, it can be difficult to determine which ones are most suited to a particular study, or even how regularly they are employed within clinical or research settings. In recent years, a number of published reviews have sought to evaluate many instruments, which assess different traumatic events (Briere, 2004; Elhai et al., 2005). Other reviews describe the phenomenon of PTSD following childbirth, in general, but not the instruments that have

been used to measure it (Olde et al., 2006; Ayers, 2004). There is no single review that targets the quality and use of instruments to measure PTSD following childbirth. Thus, this systematic review of the scales for the measurement of PTSD following childbirth is aimed at pinpointing, comparing, and evaluating accurately the psychometric properties of comparable tools as well as making suggestions for the most suitable use of these tools for a particular population.

Essential to the strength of a methodological review is careful selection of the quality criteria utilised to determine the measurement characteristics of the tools (Terwee et al., 1997). For this work, the quality assessment framework set out by the Centre for Reviews and Dissemination (CRD) guidance (NHS, 2008) is utilised. The best approach to maintaining the measure quality is to use measures that have already been validated. That is, if a measure has been deemed valid, it has already undergone a stringent assessment, designed to determine whether or not it can properly measure what it is aimed at measuring. The level of reliability should always be high, regardless of the participant population or the procedure in a study. It is important to note that this system of assessment is generally well regarded by academics, with most believing that it is a good way to make sure that scales are of a high quality (Windle, Bennett, & Noyes, 2011).

The assessment of instruments that have traditionally been used to measure PTSD following childbirth is important for several reasons. Firstly, this kind of knowledge helps researchers to identify the scales that best suit their research, via a close comparison of studies. It can also provide researchers with a clear picture of the characteristics associated with PTSD following childbirth. Lastly, the information gathered can support clinicians and researchers who are new to the post-traumatic stress field.

3.3 Aims

This review is aimed at identifying PTSD measurement scales that have been used to assess PTSD following childbirth. Then, the psychometric stringency (reliability and validity) of these measures is scrutinised to determine whether the scales cover the full PTSD profile or just part of the criteria. In addition, there is the purpose of ascertaining the period following childbirth (days/months) the scale was applied to. Finally, the highest quality measures for PTSD following childbirth for optimal research are identified.

3.4 Methods

3.4.1 Design

The Centre for Reviews and Dissemination (CRD) guidance (NHS, 2008) was utilised to conduct a quantitative methodological review using systematic principles.

3.4.2 Search strategy

This review has two phases: first, the identification of the articles in which PTSD following childbirth is a key focus and which include a scale that can be used to diagnose PTSD following childbirth. The second phase is to determine which scales were used in each article and then, evaluate the psychometric properties of every single scale by use of an amended quality assessment framework set out by the Centre for Reviews and Dissemination (CRD) guidance (NHS, 2008).

To identify all the peer reviewed journal articles in which PTSD following childbirth is a key focus, the following electronic databases were searched: OVID (Medline, PsychINFO, and EMBASE) and the Cochrane database of systematic reviews (to check the availability of such reviews on measurement scales associated with PTSD following childbirth). The searches were limited to the English language and human beings as the

subject. Moreover, they included only papers published between January 1990 and February 2014, with keywords being: PTSD, Post-traumatic Stress, Postnatal, Perinatal, Postpartum, Childbirth, Birth, Delivery, Traumatic Delivery, and Birth Trauma. These terms were searched for both individually and in combination (see Figure 3.1). Next, manual searches of the references listed in the selected publications were also performed. Finally, a 'forward search' was carried out to review all papers that cited the selected publications so as to identify any missing articles.

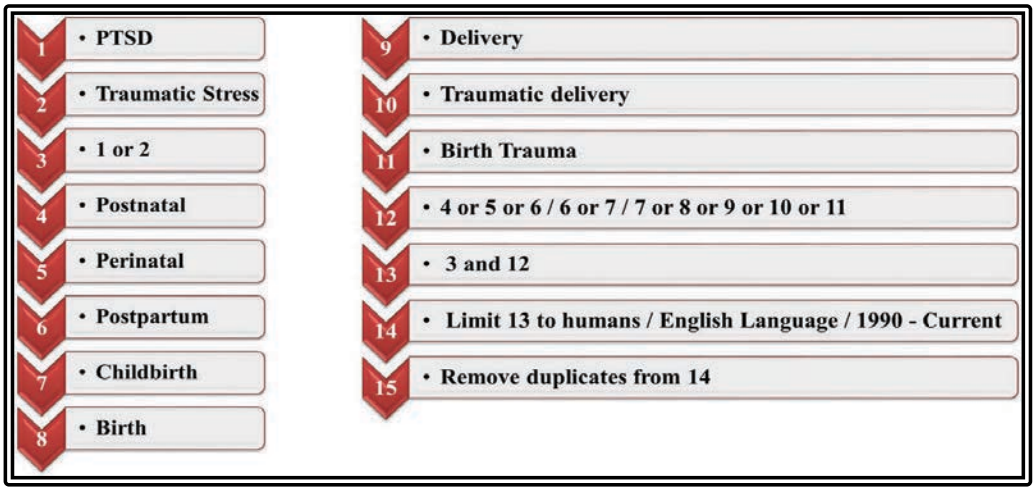


Figure 3.1. Search terms

3.4.3 Inclusion criteria

To recap, the only journal articles included were ones focused on PTSD following childbirth and published between January 1990 and February 2014. This time period was chosen specifically, because reliable studies on PTSD following childbirth were only really begun in 1993, after research by Menge (1993) was published. For this research, Menge interviewed 30 mothers who had experienced a 'bad' birth (Wijma et al., 1997). Hence, a time frame of from1990 onwards was selected. The selected articles needed to: 1) include a scale that could be used to diagnose PTSD following childbirth; 2) have used a sample of women post-childbirth; and 3) focus on mothers who had experienced successful childbirth (live birth). This included normal deliveries and other types, including caesarean section.

3.4.4 Exclusion criteria

The article was excluded if it was: 1) a qualitative study without using a scale; 2) a review; 3) a dissertation; 4) an abstract only; 5) a conference abstract; 6) not relevant; 7) only the title was available. 8) the full text was not in English; 9) a book chapter: or 10) a magazine article.

3.4.5 Data extraction

In the first phase, the identified titles and abstracts were downloaded, with any duplicates being removed. Two researchers, in accordance with the abovementioned inclusion criteria, screened the titles and abstracts of the articles. The references of the selected and confirmed studies were examined to identify any missing articles as well as the cited papers reviewed forward to identify any missing article. Both of the researchers agreed upon the final choice of included studies. The full articles that did meet the inclusion criteria, were then retrieved and reviewed by researcher A and checked by B, by continuing to apply the aforementioned inclusion criteria. There were some studies that were excluded, because the full texts were not available in English, or they were not available to access or came under the other exclusion criteria that were applied. Then, those articles reported scales, were reviewed and the corresponding data were recorded (article title, author, aims, country, population, sample type, age, recruitment place, time of assessment, recruitment method). Lastly, information about the results was extracted from each article and presented within carefully developed data extraction tables (see Appendix C-1).

The second phase was to determine which scales were used in each article, and to classify them in such a way as to make it clear how many times a specific scale was employed through the selected studies. There were two types of article identified via this process. First, the searches yielded papers that detailed the development of original scales (see Appendix C-2). Second, they identified documents that had used these scales for a variety of samples

and settings. From those papers, data were extracted for every individual scale (name of the measure, author, date, type of trauma, country, number of studies that have used it, aims, item totals, subscales, scaling responses, reliability, validity, covered PTSD criteria, modes of completion, age range, applied to, translation and period applied) and presented within carefully developed data extraction tables (see Table 3.1).

3.4.6 Quality assessment

The psychometric properties of the individual scales were evaluated by two researchers (A and B), via the use of an amended quality assessment framework set out by the Centre for Reviews and Dissemination (CRD) guidance (NHS, 2008). The resulting framework included examination of each measure's content validity, internal consistency, criterion validity, construct validity, reproducibility, responsiveness as well as the floor and ceiling effects (see Table 3.

*Table3. **2***

Scoring criteria for the quality assessment of each PTSD measure

Property	Definition		Quality criteria
Content validity	The extent to which the components included an assessment instrument are valuable to and representative of the determined objective	3	Covered all the PTSD criteria from (1-6), a clear description of measurement aim, target population, concept(s) that are being measured, and the item selection AND the target population and experts were involved in item selection
		2	Covered 3 or more from the PTSD criteria, a clear description of measurement aim, target population, concept(s) that are being measured, and the item selection AND the target population and experts were involved in item selection
		1	A clear description of the abovementioned aspects is lacking OR only target population involved OR doubtful design or method.
		0	No information found on target population involvement.
Internal Consistency	The items within a measure are evaluated in regards to their ability to offer similar outcomes	2	Cronbach's alpha(s) calculated per dimension AND Cronbach's alpha(s) between 0.70 and 0.95.
		1	No factor analysis OR dubious design or method Cronbach's alpha(s) <0.70 or >0.95.
		0	No information found on internal consistency
Criterion validity	The degree to which a scale scores in line with a gold standard	2	Correlation with gold standard > = 0.70.
		1	Correlation with gold standard <0.70, despite adequate design and method.
		0	No information found on criterion validity.
Construct validity	The extent to which scores on a specific measure are related to other measures that assess the same concepts that are being measured	2	A correlation with other measures that concern the same disorder or other disorder that have the same theoretical hypotheses > = 0.70.

*Table3. **2***

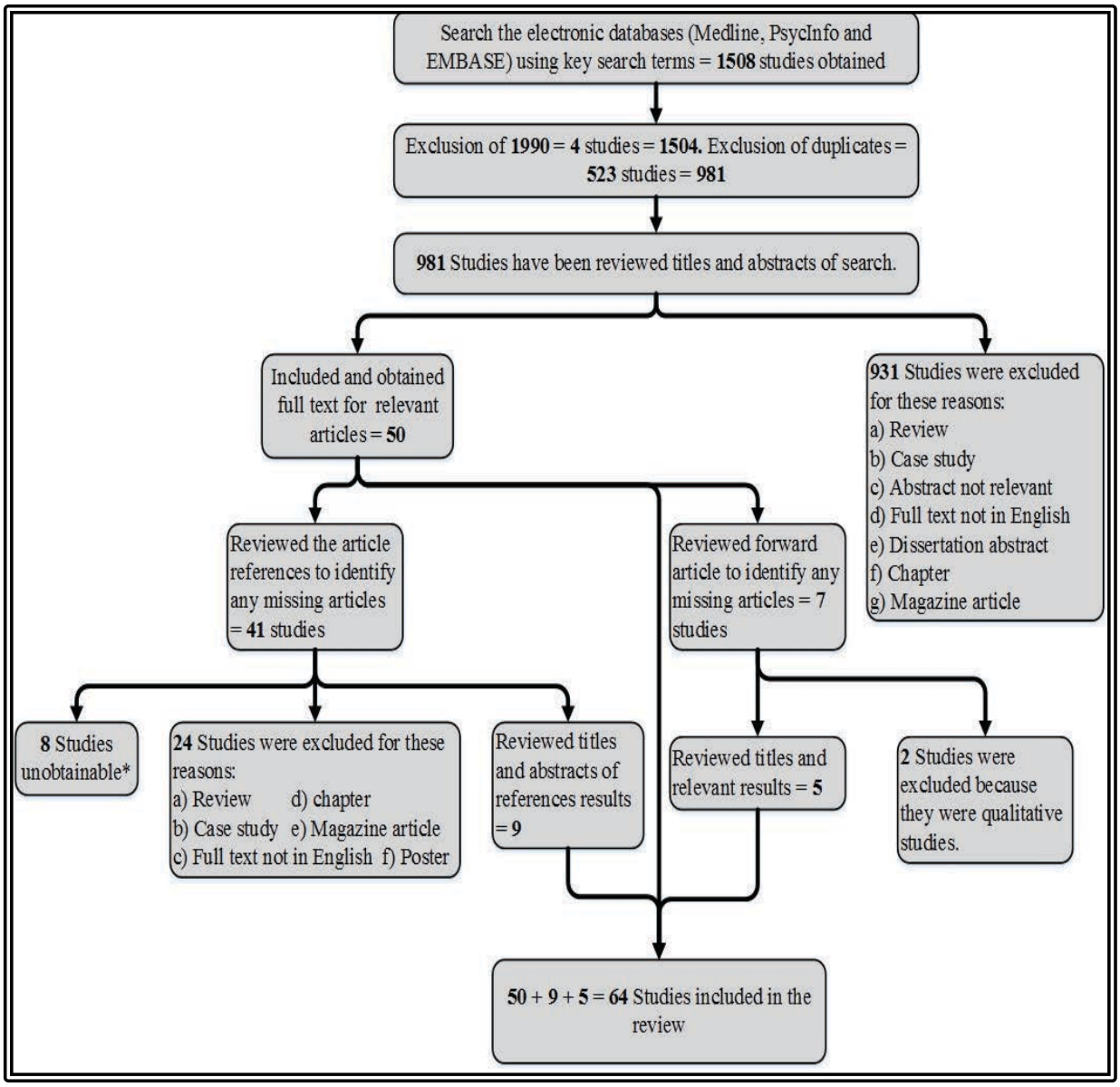
Scoring criteria for the quality assessment of each PTSD measure

Property	Definition		Quality criteria
		1	A correlation with other measures that concern the same disorder or other disorder that have the same theoretical hypotheses < = 0.70.
		0	No information found on constructs.
Agreement (test retest)	The extent to which the scores on repeated measures are close to each other	2	Convincing argument that agreement is acceptable and a correlation between the first test and the second of > =0.70.
		1	No convincing arguments that agreement is acceptable and a correlation between the first test and the second of <=0.70.
		0	No information found on agreement.
Reliability	The degree to which a group of participants can be distinguished from another group based on specified criteria	2	Convincing argument that the level of distinguishing is acceptable.
		1	Doubtful with regards to distinguishing.
		0	No information found on this.
Responsiveness	The capacity of a resource to react to development over the long term	2	Convincing argument that detecting the changes is acceptable.
		1	Doubtful of detecting the changes.
		0	No information found on this.
Interpretability	The extent to which a qualitative definition can be attached to the quantitative outcomes	2	Clear outcomes definition.
		1	Not clear.
		0	No information found on interpretation.

For every single scale, across eight domains, a score rating was given (from 0-2). This was the case for all domains except content validity, which was rated using a 0-3 scale, in order to take into account the differences between the scales in regards to their ability to fulfil the DSM- IV PTSD criteria. A score of 2 was awarded, if the scale was sufficiently designed, executed, and analysed. A score of 1 was awarded, if there was an insufficient description of the design, and insufficient methods and analysis techniques were employed. A zero rating was awarded when there was no available information relating to the relevant criteria. In order to provide researchers and practitioners with a clear overall score for each measure, a validated scoring system led to scores ranging from 0 (low) to 17 (high). A reliable total was calculated for every scale by adding up the scores.

3.5 Results

The search strategy identified 981 abstracts with a primary focus on PTSD following childbirth. The researchers excluded 931 articles, which were deemed unsuitable based on the aforementioned inclusion/exclusion criteria, as demonstrated in Figure 3.2.



*Note. *Unobtainable because it is not available online and no response from the author.

Figure 3.2. Flowchart of the Review Process

For the remaining 50 articles, which met the study criteria, all references were reviewed to identify any missing articles. This yielded a further 41 studies, 24 of which were excluded based on the exclusion criteria, and a total of eight articles could not be found online. The authors were contacted directly but no response was received. So, from the further 41 studies only nine articles were added to the first 50. Forward searches identified

seven further articles, of which two were excluded and the final number selected for review was 64 (see Appendix C-1).

From these studies, 18 measure scales were identified (self-reports and interviews), whilst 14 of them measured PTSD following childbirth (see Table 3.1). A total of four measures were excluded, because they had not been used to examine PTSD following birth (in this review), these being: an assessment of the history of potential traumatic event exposure (the TLEQ Traumatic Life Events Questionnaire, Kubany et al., 2000), an assessment of traumatic events not relating to childbirth (the TEQ Traumatic Events Questionnaire, Vrana & Lauterbach, 1994), a commonly used scale as a gold standard for diagnosing PTSD (the CAPS Clinician Administered PTSD Scale, Griffin, Uhlmansiek, Resick, & Mechanic., 2004) and the PTSD-I (Post-Traumatic Stress Disorder Interview, Watson, Juba, Manifold, Kucala, & Anderson 1991). Four out of the 14 included measures were adapted versions of already well-established scales (IES-R, PSS-I, MPSS-SR, and TES-B) that have been used to examine PTSD following childbirth.

The 14 scales included in this review are: **IES** Impact of Event Scale (Horowitz et al., 1979), **IES-R** Impact of Event Scale – Revised (Weiss & Marmar, 1997 in Creamer,Bell, & Failla, 2003), **PDS** Posttraumatic Diagnostic Scale (Foa et al., 1997), **PSS-SR** Post-traumatic Symptom Scale (Foa et al., 1993), **PSS-I** PTSD Symptom Scale – interview (Foa et al., 1993), **MPSS-SR** Modified PTSD Symptom Scale Self-Report (Falsette, Resnick, Resick, & Kilpatrick., 1997), **TES** Traumatic Event Scale (Wijma et al., 1997), **TES –B** Traumatic Event Scale-B (Wijma et al., 1997), **PTSD-Q** Posttraumatic Stress Disorder Questionnaire (Czarnocka & Slade, 2000), **P.P.Q** Perinatal Post Traumatic Stress Disorders Questionnaire (De Mier, Hynan, Harris, & Manniello, 1996 in Quinnell & Hynan, 1999), **MINI** Mini-International Neuropsychiatric Interview (Soderquist, Wijma, Thorbert, &Wijma., 2009), **PCL-C** Checklist—Civilian Version (Weathers et al., 1994), **DTS**

Davidson Trauma Scale (Davidson et al., 1997), and the **PTCS** Posttraumatic Childbirth Stress Inventory (Sorenson, 2000b, 2003). Full details of these scales can be found in Table 3.1.

3.5.1 Overall Description of the Measures

Three of the selected measures for assessing PTSD (PSS-I, MINI, and PTSD-I) are interview based, whilst the remaining ones are self-report questionnaires. The majority of the measures employed within this study were designed to evaluate a broad range of trauma types, but some were created specifically to assess PTSD following childbirth, these being: TES –B Traumatic Event Scale-B (Wijma et al., 1997), PTSD-Q Post-traumatic Stress Disorder Questionnaire (Czarnocka & Slade, 2000) and the PTCS Posttraumatic Childbirth Stress Inventory (Sorenson, 2000b, 2003). It is important to note that the P.P.Q Perinatal Post Traumatic Stress Disorders Questionnaire (De Mier et al., 1996) was also created to assess the signs of PTSD that appear within the postnatal timeframe (Callahan Borja, & Hynan, 2006).

Within this review, 12 of the selected studies employed PDS (Foa et al., 1997) as a main measure of PTSD following childbirth. A further 11 studies used IES, and 10 used PSS-SR. The remaining measures were employed less than six times (see Table 3.1).

In total, the PDS (49 items) was awarded the highest quality score (15), followed by the PTSD-Q (Czarnocka & Slade, 2000) (17 items), and the PSS-I (Foa et al., 1993) (17 items) that were awarded a quality score of 14. This is consistent with the frequency of use of the PDS self-report scale in the selected literature. However, the PTSD-Q was only used three times, and the PSS-I just twice.

3.5.2 Content validity

The term content validity is used to describe the extent to which the components included in an assessment instrument are valuable to and representative of the determined objective (Haynes et al., 1995). For this study, the scale was awarded the highest score of 3, if it contained a clear description, fully explained objectives, and it covered all of the PTSD criteria. It was awarded a score of 2, if it included a clear target population (trauma types, age), and assessed the main three PTSD criteria (intrusion, avoidance, and hyper arousal) (see Table 3.3).

There were only two scales (PDS: Foa, 1997, TES: Wijma at al., 1997) awarded the highest score of 3, and this was because they adequately assessed all of the PTSD criteria. A total of ten scales (PSS-SR: Foa et al., 1993), (PSS-I: Foa et al., 1993), (MPSS-SR: Falsette, 1997), (TES –B: Wijma at al., 1997), (PTSD-Q: Czarnocka & Slade, 2000), (P.P.Q: De Mier et al., 1996), (MINI: Lecrubier et al., 1997), (PCL-C: Weathers et al., 1994), (DTS: Davidson et al., 1997) and (PTCS: Sorenson, 2000b, 2003) were awarded scores of 2. A total of two scales were awarded a score of 1, because one of them (IES: Horowitz et al., 1979) only assessed two of the PTSD criteria and the other (IES-R: Weiss & Marmar, 1997) did not identify a clear target population (see Table 3.3).

3.5.3 Internal consistency

The internal consistency approach describes a strategy, whereby the items within an assessment measure are evaluated in regards to their ability to offer similar outcomes with repeat testing (Haynes et al., 1995). All the measures covered in this review had an appropriate Cronbach Alpha and scored 2 for the measure itself and its dimensions. The Cronbach Alphas of the measures ranged from 0.83 to 0.95 (see Table 3.3).

3.5.4 Criterion validity

The criterion validity refers to the degree to which a scale scores in line with a gold standard (Windle et al., 2011). For this project, the majority of the reviewed studies took into account the Structured Clinical Interview for DSM (SCID) (Spitzer et al., 1992), as a gold standard. It is a standardised diagnostic interview that has been used widely to assess different psychiatric disorders. In addition, the Clinician Administered PTSD Scale (CAPS; Blake et al., 1995) is another highly regarded gold standard, and it has been employed within this project in order to provide concurrent validity in accordance with the PDS (Griffin, et al., 2004).

Both the SCID and the CAPS have been frequently employed as a gold standard for PTSD measures; they assess the same primary set of PTSD symptoms, in accordance with the DSM-IV (American Psychiatric Association, 1994). Also, they both represent robust psychometric characteristics, particularly within trauma populations. However, CAPS should only be carried out with the assistance of a mental health expert, or at the very least, a semi-professional with the relevant skills (Blake et al., 1995). In contrast, the SCID is designed to be used for a wide range of general diagnoses.

Within this review, the criterion validity of the scales was determined via a comparison with diagnoses already gathered using the SCID. Thus, a reasonable correlation between the measures and the SCID was scored 2 in 11 of the measures (IES, PDS, PSS-SR, PSS-I, MPSS-SR, PTSD-Q, P.P.Q, MINI, PCL-C, DTS, PTCS). It is important to note that CAPS and PDS have a strong correlation. The measures IES-R, TES, and TES-B were awarded the lowest score, because they did not provide any useful data relating to criterion validity (see Table 3.3).

3.5.5 Construct validity

Construct validity is the extent to which the scores on a specific measure are related to other measures that assess the same concepts that are being measured. There are lots of different validity terms, which were employed to define construct validity or criterion validity in the psychometric field (predicative, convergent, divergent, concurrent, and discriminatory), even in spite of the fact that they themselves form disparate types of construct value. For instance, Foa et al. (1993) and Cohen et al. (2004) have employed concurrent validity terms. In total, there were five measures (PDS, PSS-SR, PSS-I, PTSD-Q, DTS), which were significantly related to others that have the same theoretical concept. They were awarded scores of 2, in accordance with the Beck Depression Inventory (BDI: Beck, et al., 1961) and the Impact of Event Scale (IES). This is because they all focused on the same basic outcome theories (Depression/PTSD).

A total of two measures (IES, IES-R) were awarded a score of 1. Whilst their construct validity was evaluated using a range of different tools, the correlations suggest that their alphas are acceptable (Horowitz et al., 1979). The remaining measures were awarded a 0 score, because they did not include any valuable data relating to construct validity (see Table 3.3).

3.5.6 Agreement (Test-retest)

A test/retest is a concept that is carried out by conducting the same assessment two times within a predefined time period and involving a selected group of participants. The scores from Test 1 and Test 2 are then compared, in order to analyse the overall reliability of the assessment.

The majority of the measures (IES, PDS, PSS-SR, PSS-1, PTSD-Q, P.P.Q, MINI, PCL-C, DTS,) possessed a good agreement between the initial application score and the second score (test/retest). As such, they were awarded a score of 2. The IES-R measure was

awarded a score of 1, because it did not provide a test/retest value for all of the scales, only the subscales. A total of four measures were awarded a 0 score, because they did not provide any test/retest data at all (see Table 3.3).

3.5.7 Reliability

The term reliability refers to the degree to which a group of participants can be distinguished from another based on specified criteria (Windil et al., 2011). A total of 10 measures (IES, IES-R, PDS, PSS-SR, PTSD-Q, P.P.Q, MINI, PCL-C, DTS,) did have the ability to distinguish between the participants in terms of having the PTSD criteria or not and so, they were awarded a score of 2. A total of four measures (MPSS-SR, TES, TES –B, PTCS) were awarded a 0 score, because they did not provide any data of this nature (see Table 3.3).

3.5.8 Responsiveness

The term responsiveness refers to the capacity of a resource to react to development over the long term. However, this feature barely appeared at all within the selected scales, except PDS and PSS-I, which were awarded a 2. The only measure to be awarded a score of 1 was IES (see Table 3.3).

3.5.9 Floor/ceiling effects

The range of the floor to ceiling impact was not taken into account in any of the scales.

3.5.10 Interpretability

The term interpretability describes the extent to which a qualitative definition can be attached to quantitative outcomes (Windil et al., 2011). The only scale to be awarded a score of 2 was the P.P.Q., because it mentioned that the cut-off that indicates clinical levels of PTSD symptoms is 6 or more out of 14 (Lonio & Di Blasio, 2014).

3.5.11 Application of measures

It was illustrated how each of the measures was used within the 64 studies identified by this review. The aim of each study has been summarised along with the country in which it was carried out, the population studied (including age of sample, sample size and recruitment strategy), the timing of the assessment, the methods of the study, and the overall findings (see Appendix C-1).

The IES (Horowitz et al., 1979) was predominantly used in the UK, European and Scandinavian studies, with mainly female participants from 13 to 44 years (two studies also included male partners). Participants in studies using the IES were typically recruited through postnatal health services, and measures were taken between 28 weeks gestation and up to 2 years postpartum. Studies using the IES typically included both interview and questionnaire methods.

The IES-R (Weiss & Marmar, 1997) was used three times in this review, mainly applied in the UK and European countries. It has been used with new mothers and multiparous mothers between 16 to 41 years old. They were recruited from postnatal health services in a range of 48 hours to nine month postpartum. It was administered to the participant via a postal questionnaire.

The PDS (Foa, 1997) was used 13 times, mainly applied in the UK, European and Australian studies. It has been used with many participant groups including pregnant women, new mothers, multiparous mothers and fathers between 19 and 50 years old. Participants were recruited through different methods: postnatal health services and online in a range of last trimester of pregnancy as well as hours postpartum to 18 years after birth. It was administered to the participants online, by face to face/phone interviews or postal questionnaire.

The PSS-SR (Foa et al., 1993) was used 10 times in this review, being mainly applied in the UK, European and Scandinavian countries in addition to USA, Canada, Australia and Iran. It has been used with multiparous mothers between 19 and 45 years old. They were recruited from postnatal health services, newspapers and online in the range of the last trimester of pregnancy to 18 months postpartum. It was administered to the participants online, face to face, through phone interviews or by postal questionnaire.

The PSS-I (Foa et al., 1993) was used two times in this review, being applied in Iran and Israel, with multiparous mothers between 18 and 44 years old. They were recruited from postnatal health services in a range of mid pregnancy to 6 months postpartum. It was administered to the participants face to face or by phone interviewing.

The TES (Wijma at al., 1997) was used six times in this review, being mainly applied in Sweden and USA, with multiparous mothers between 15 and 45 years old. They were recruited from postnatal health services in a range of the pregnancy period to 3 years postpartum. It was administered to the participants face to face, through phone interviews or a postal questionnaire.

The TES-B (Wijma at al., 1997) was used one time in this review, being applied in The Netherlands, with mothers from 17 to 45 years old. They were recruited from postnatal health services, in a range of 2-6 months postpartum.

The PTSD-Q (Czarnocka & Slade, 2000) was used three times in this review, being applied in UK and Italy, with pregnant women and mothers between 18 and 41 years old. They were recruited from postnatal health services in a range of 72 hours to 6 months postpartum. It was administered to the participants through face-to-face interviews or by postal questionnaire.

The P.P.Q (De Mier et al., 1996) was used three times, in Italy, with pregnant women and mothers from 20 to 43 years old. They were recruited from postnatal health services in

pregnancy to 12 months postpartum. It was administered to the participant face to face or by phone interviews.

The MINI (Lecrubier et al., 1997) was utilised three times in this review, in Brazil, Australia and Nigeria. It was administered to new mothers and multiparous mothers between 15 and 46 years old. They were recruited from postnatal health services in pregnancy to 4 months postpartum. It was administered to the participants via interviews or by postal questionnaire (see Appendix C-1).

Table3. 3
The references for PTSD following childbirth measures validation

Measures	Content V	Internal Consistency	Criterion V	Construct V	(Test-retest)	Reliability	Responsiveness	Floor/ceiling	Total
IES (Horowitz et al., 1979)	1	2	2	1	2	2	1	0	11
IES-R (Weiss & Marmar, 1997)	1	2	0	1	1	2	0	0	7
PDS (Foa, 1997)	3	2	2	2	2	2	2	0	15
PSS-SR (Foa et al., 1993)	2	2	2	2	2	2	0	0	12
PSS-I (Foa et al., 1993)	2	2	2	2	2	2	2	0	14
MPSS-SR (Falsette, 1997)	2	2	2	0	0	0	0	0	6
TES (Wijma et al., 1997)	3	2	0	0	0	0	0	0	5
TES –B (Wijma et al., 1997)	2	2	0	0	0	0	0	0	4
PTSD-Q (Czarnocka & Slade, 2000)	2	2	2	2	2	2	0	2	14
P.P.Q (De Mier et al., 1996)	2	2	2	0	2	2	0	2	12
MINI (Lecrubier et al., 1997)	2	2	2	0	2	2	0	0	10
TSD (Weathers et al., 1994).	2	2	2	0	2	2	0	0	10
DTS (Davidson et al., 1997)	2	2	2	2	2	2	0	0	12
PTCS (Sorenson, 2000b., 2003)	2	2	2	0	0	0	0	0	6

3.6 Discussion

The primary objective of the study was to highlight all of the measures that have been employed as a way to support the diagnosis of PTSD following childbirth, from 1990-2014. Also, there has been evaluation of the psychometric characteristics (reliability and validity) and quality of these measures, defined in terms of whether the scales covered all the PTSD criteria and reported on the period for which the scale had been applied after birth.

A total of fourteen measures were highlighted and described as accurately assessing PTSD following childbirth. The entirety of the measurement psychometric information (reliability, validity) was drawn from the initial research on the specific measure. In some instances (IES-R, P.P.Q, PCL-C, DTS, PTSD-I, TLEQ), the psychometric data were drawn from a validation version confirmed by an additional researcher. Yet, some of the measures still lacked certain pieces of data, particularly in relation to their psychometric characteristics (Table 3.1).

From this review, it is concluded that the (PDS: Foa et al., 1997) is a good scale given its high quality psychometric properties and its coverage of all the PTSD diagnostic criteria. Also, it has been used with several different types of traumas. There are some reviews designed to monitor the development of studies on PTSD following childbirth (Ballham, 2003; Olde et al., 2006; Sawyer, Ayers, & Smith, 2010; Lapp, Agbokou, Peretti, & Ferreri 2010; Andersen, Melvaer, Videbech, Lamont, & Joergensen, 2012). Some of them (e.g. Olde et al., 2006) have assessed some of the PTSD following childbirth measures as part of their literature review and their findings are in line with this review's results. Moreover, Elhai et al. (2005) asked trauma experts on the use of standard trauma tools and they found that the most commonly utilised measure, for evaluating trauma, was the Post-traumatic Stress Diagnostic Scale (PDS; 16% of users).

For this review, it should be noted that the majority of the self-report measures selected are not able to function independently when it comes to evaluating all DSM-III and DSM-IV PTSD criteria, except for the PDS (Foa, 1997). This is because they only evaluate B (re-experienced), C (avoidance) and D (arousal) criteria, thus neglecting the need to evaluate duration (E) and function (F) criteria, which the PDS does. These measures all refer to the presence or lack of specific symptoms, which should be considered during the diagnosis of PTSD, in general and following childbirth. Yet, it is possible to consider these measures as more of a detection tool, designed to assist in determining symptoms and not for diagnosing PTSD. The majority of the measures fail to offer valuable data on the type of incident that invoked the symptoms in the first place (Criterion A).

Moreover, it is important to point out that, whilst there have been developments and changes in the DSM-V (2013), particularly in terms of diagnosis, there had been no updated or upgraded version of any of the scales up until when this review was conducted. Further work is necessary to develop scales that adequately assess PTSD symptoms and diagnosis consistent with DSM-V.

The quality evaluation outcomes are convergent in regard to the psychometric properties. It can be seen from Table 4 that the highest quality scores were for the PDS then PSS-I and PTSD-Q. In contrast, the PTCS, TES and TES-B scored lowest for the available and reported psychometric properties.

The PDS has been employed 12 times throughout this review, and it has been awarded the highest scores, even though it takes the form of a lengthy self- report survey (including 49 items). One benefit of its length is that it does take into account all six PTSD criteria. The PDS and PTDS are two names used for the same measure; it is referred to as the PDS in the initial article used to outline its inventory (Foa, 1995) and PTDS within the validation document (Foa et al., 1997 in Briere et al., 2004). The PDS was created to tackle

some of the restrictions inherent in other measures. Hence, the motivation behind its refinement and further development was fairly strong. The PDS deals with fairly trivial amendments within the PTSD symptom criteria from DSM-III-R to DSM-IV, by merging them and then making them easier to understand. It was also created to be a tool that can function independently, whilst still offering accurate PTSD diagnosis and an index of symptom severity. The original version of the PDS is PSS-SR, which followed the DSM-III-R criteria and much like any other PTSD self- report tools, it provided information on PTSD symptoms, but failed to determine whether the provoking incident actually fulfilled the criteria of a traumatic experience (Criterion A). It also failed to assess the extent of impairment (Criterion F).

Lastly, in general, other self- report measures of PTSD have often been validated via the use of samples relating to just one type of trauma, e.g. male war veterans or female victims of violence. However, the psychometric characteristics of the PDS were analysed using a variable sample, containing an equal sample of males and females, who had undergone a variety of traumatic experiences (Foa et al., 1997).

Another commonly used measure in the field is the IES, which has been in use for around two decades and has been employed 11 times within studies in this review. It has been suggested by Joseph (2002), that the IES functions well as a measure of PTSD symptoms, but is not as an appropriate tool to use for PTSD diagnosis. First, the IES fails to assess the hyperarousal criteria (Criterion D), which are standard as part of the diagnosis criteria within the DSM- IV, (Sundin & Horowitz, 2002). Second, the IES does not have the best properties of reliability and validity, scoring 11/17 in the current rating. Third, it fails to identify clearly the criteria for PTSD diagnosis, which has repeatedly been described as a disadvantage of its use IES, because diagnostic criteria are being changed, and the tools used to assess them need to be developed (Joseph, 2000). Fourth, it fails to consider various

different avoidance symptoms (memory loss, detachment, loss of focus, negative perspective) and does not cover imposition criteria either (e.g. flashbacks, psychological reactivity). Fifth, the content quality of the IES, as a measure of PTSD, is restricted. However, the IES is usually employed to validate new measures, and has been used to offer (at least in the past), what could be referred to as the gold standard of a self-report measure within the trauma field. Therefore, there are good reasons to think that the IES is still a valuable tool. For example, it enables researchers to make comparative judgements relating to dissimilarities and disparities between new and old types of trauma (Joseph, 2000). In addition, it can be used to assess the degree of intrusion and avoidance (two characteristics that are at the heart of the PTSD diagnosis framework) (APA, 1994). This has resulted in many researchers employing the IES as a basic measure of PTSD (Joseph, 2000; Rothbaum, Foa, Riggs, Murdock, & Walsh, 1992). However, in general it is not clear to what degree that the abovementioned criteria affect the assessment of PTSD by the IES (Joseph, 2000). However, the IES-R incorporates different components from Criterion D to identify hyperarousal criteria. Thus, the content value, as a measure of PTSD, appears not to be the biggest challenge. Additional psychometric information is needed, and the value of the IES-R as a diagnostic resource is, as yet, unclear (Joseph, 2000).

3.7. Strengths and limitations

This review is the first systematic one aimed at identifying all the measures that have been used to assess PTSD following childbirth and includes a summary of all of the studies, which have used these measures. It is hoped that the results will aid researchers when it comes to selecting the most suitable scales for their projects. Subsequently, that will help researchers better understand mothers who are suffering following birth.

However, there have been some limitations of this review. The first is that only texts produced in English were included. The second is that it was centred on quantitative studies not qualitative ones as it concerned looking at the measures. The third is that it only takes into account studies which were officially published, and lastly, all of the scales items are based on criteria detailed in the DSM-IV or its earlier versions. The newer version (DSM-V) was released in 2013, but all of the measures in this review were created before 2000.

3.8 Recommendation

Given the fact that there are 18 different measures that can be used to assess PTSD symptoms following childbirth, the choice of which scale to use requires some consideration. Firstly, it is important to understand fully what is being assessed. I a study is attempting to determine the prevalence of PTSD, all relevant diagnostic criteria have to be assessed, including those in criterion A, so PDS (Foa, 1997) or TES (Wijma at al., 1997) would be good scales. In contrast, if a measure is employed to make judgements about PTS (just symptoms, not diagnosis) following childbirth, it should be possible to utilise any of the available measures that cover the symptoms part of the criteria, such as PTSD-Q (Czarnocka & Slade, 2000) or PSS-I (Foa et al., 1993). Secondly, whilst there are PTSD measures that assess whole and partial PTSD criteria, researchers must try to focus more on the subjective experience of birth, in addition to PTSD criteria. Thirdly, it is necessary to consider whether the screening tools were employed originally to pinpoint different types of traumas, or to assess PTSD following childbirth. Thus, a specific measure, which can be used to assess PTSD following childbirth, is essential. Lastly, it is similarly important to know that all of the 18 measures discussed in this project are founded upon DSM-IV (1994) or the DSM-III (1989) criteria, which have recently been updated in DSM-V (2013). The criteria within this new version are different to the earlier ones. For example, the trauma criteria (Criterion A)

are more clearly defined, particularly in relation to the specific way in which a person experienced the stressful incident. Plus, Criterion 2 (subjective response) is no longer included. In DSM-IV, there were three primary symptom classifications, namely re-experiencing, avoidance, and arousal. In DSM-V, within these classifications, there are subcategories. The avoidance classification is split into avoidance and persistent negative alterations in cognitions and mood. This second subcategory, which incorporates most of the DSM-IV numbing symptoms, involves new symptoms, such as persistent negative emotional state. The last category, changes in arousal and reactivity, is associated with many of the DSM-IV arousal criteria. Also, it incorporates irritable or aggressive behaviour and reckless or self-destructive behaviour.

In conclusion, this review found that a total of 14 measures have been highlighted and described as accurately assessing PTSD following childbirth. PDS was awarded the highest quality scores for its high-quality psychometric properties, its coverage of all the PTSD diagnostic criteria, and its use for several different types of traumas. Also, the PTSD-Q and PSS-I. IES have some limitations in assessing PTSD due to their failure to cover all PTSD diagnostic criteria. Valid PTSD measures based on the new version of DSM for use with women following childbirth are needed for new research in perinatal healthcare and women's wellbeing.

Table3. 1
Description of the PTSD following childbirth measures

1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. IES Impact of Event Scale Horowitz et al. 1979 USA	▪It was originally created for bereaved individuals ▪Variety of traumas. -N/A	11	▪Created for bereaved individuals, ▪Variety of traumas.	15/4	▪Intrusion (7 items) ▪Avoidance (8 items)	▪α = .86 ▪Retest r = 0.87 ▪Split-half = 0.86	▪Spearman 0.86 ▪Sensitivity = 0.89 ▪Specificity = 0.88	▪2 criteria listed in the DSM-IV ▪intrusion ▪avoidance	Self-rating scale	▪Clinical ▪Research setting	▪Hebrew and Dutch	N/A	▪IES is not effective or meaningful when used with people who have been exposed to multiple traumas.
2. IES-R Impact of Event Scale – Revised Weiss & Marmar, 1997 USA	▪Variety of traumas ▪ Senior	3	▪To measure PTS and add a third cluster of symptoms, hyper arousal, to intrusion and avoidance subscales.	14/5	▪Intrusion (8 items) ▪Avoidance (8 items) ▪Hyper arousal (6 items)	▪Retest Intrusion = 0.57, Avoidance = 0.51, Hyper arousal = 0.59	Against ▪SCID-P ▪ICDI	▪3 criteria listed in the DSM-IV ▪intrusion ▪avoidance. ▪ hyper arousal	Self report	▪Clinical ▪Research setting	▪Spanish French, Chinese Japanese and German	Past 7 days	None
3. PDS The Posttraumatic Diagnostic Scale Foa, 1995 Sweden	▪Variety traumas ▪18–65	12	▪To measure trauma history with a checklist of 11 traumatic events.	49/4	▪Intrusion (5 items) ▪Avoidance (7items) ▪Hyper arousal (5 items) ▪Duration (2 items) ▪Function	▪Retest r = 0.92 ▪ α = 0.92 ▪Reliability 0.74 - 0.94.	▪SCID diagnosis, 0.80	▪All criteria listed in the DSM-IV.	Self-report	▪Clinical ▪Research setting	N/A	Last 4 weeks	The questionnaire has a checklist of prior trauma history.

Table3. 1
Description of the PTSD following childbirth measures

1	2	3	4	5	6	7	8	9	10	11	12	13	14
					(9 items)		▪Specificity 0.75, ▪Sensitivity 0.89 . ▪Agreement with SCID 82%						
4. PSS-SR Post-traumatic Symptom Scale Foa et al. 1993 Sweden	▪Female assault victims. -N/A	10	▪To Identify PTSD in people with known trauma history.	17 /4	▪Intrusion (4 items) ▪Avoidance (7 items) ▪Hyper arousal (6 items)	▪α = 0.91 ▪Retest (r = 0.74)	▪ A correlation (0.81) with IES.	▪All criteria except E Duration	Self-report	N/A	▪Dutch and Farsi	Past 7 days	None

Table3. 1
Description of the PTSD following childbirth measures

1	2	3	4	5	6	7	8	9	10	11	12	13	14
5. PSS-i PTSD Symptom Scale – interview Foa et al. 1993 USA	N/A -N/A	2	▪To assess the severity of each of the DSM-IV PTSD symptoms	17 /4	▪Intrusion (5 items) ▪Avoidance (7 items) ▪ Hyper arousal (5 items)	▪Retest (r = .80)	▪Severity 0.97 ▪Specificity 1.00 ▪Sensitivity 0.62	All criteria except E Duration	Interview	N/A	Farsi	Past 2 weeks	It fails to offer a diagnosis for PTSD. It gives a positive or negative screening and suggests a higher or lower risk of developing PTSD
6. MPSS-SR The Modified PTSD Symptom Scale Self-Report Falsette, 1997 USA	N/A. -N/A	1	▪It is a PSS modified version to any traumatic event	17 /4	▪Intrusion (5 items) ▪Avoidance (7 items) ▪Hyper arousal (5 items)	▪ α = 0.92	▪For clinical sample Specificity 0.81 Sensitivity 0.68 ▪For community sample Specificity 0.81 Sensitivity 0.68	▪3 criteria listed in the DSM-IV ▪Intrusion ▪Avoidance ▪Hyper arousal	Self-report	▪Clinical ▪Community setting	Dutch	Past 2 Weeks	A modification of (PSS; Foa et al., 1993)

Table3. 1
Description of the PTSD following childbirth measures

1	2	3	4	5	6	7	8	9	10	11	12	13	14
7. TES Traumatic Event Scale Wijma et al, 1997 Sweden	▪Adjustable for the specific trauma of interest. -N/A	6	▪To include the stressor criterion ▪To measure the suffering of the present symptoms ▪To use the new DSM-IV criteria.	21 /4	▪Stressor (4 items) ▪ Intrusion (5 items) ▪Avoidance (7 items) ▪Hyper arousal (5 items)	▪α = 0.84 ▪Split half 0.90	N/A	▪All criteria listed in the DSM-IV.	Self-report	N/A	N/A	N/A	None
8. TES –B Traumatic Event Scale Wijma at al. 1997 Sweden	▪Childbirth -N/A	1	▪Designed to diagnose PTSD after childbirth.	17 /4	Intrusion (5 items) ▪Avoidance (7 items) ▪Hyper arousal (5 items)	▪α = 0.84 ▪Split-half = 0.90	N/A	▪3 criteria listed in the DSM-IV ▪ Intrusion ▪Avoidance ▪Hyper arousal	Self-report	N/A	N/A	N/A	Created specifically for PTSD after birth.
9. PTSD-Q Posttraumatic Stress Disorder Questionnaire Czarnocka & Slade, 2000 UK	▪Childbirth -N/A	3	▪To assess PTSD Syndrome after childbirth	17 /7	Intrusion (4 items) ▪Avoidance (7 items) ▪Hyper arousal (6 items)	▪α = 0.92 ▪Retest r = 0. 95 ▪Diagnostic agreement (87%).	▪Concurrent Validity 0.87, with (IES) ▪Sensitivity 0.81 - ▪Specificity 0.82	▪3 criteria listed in the DSM-IV ▪Intrusion ▪Avoidance ▪Hyper arousal	Self-report	▪Non-clinical population	▪Dutch	Last 6 weeks	Adapted from a diagnostic interview and has a high level of diagnostic agreement.

Table3. 1
Description of the PTSD following childbirth measures

1	2	3	4	5	6	7	8	9	10	11	12	13	14
10. P.P.Q The Perinatal Post Traumatic Stress Disorders Questionnaire De Mier et al, 1996 USA	▪Perinatal -N/A	3	▪To analyse the symptoms of post-traumatic stress disorder specifically that relates to childhood and to the ensuing postnatal period	14 /4	▪Intrusion (3 items) ▪Avoidance (6 items) ▪Hyper arousal (5 items)	▪α = 0.83 ▪Retest r = 0.92	N/A	▪3 criteria listed in the DSM-IV ▪Intrusion ▪Avoidance ▪Hyper arousal	Self-report	N/A	N/A	N/A	It is a dichotomous questionnaire.
11. MINI The Mini-International Neuropsychiatric Interview Soderquist et al. 2009 USA and Europe	N/A -N/A	3	▪To meet the need for a short but accurate structured psychiatric interview for multicentre clinical trials and epidemiology studies. To be used as a first step in outcome tracking in non researched clinical settings	14 /2	▪General interview	▪α and test-retest reliability was high	▪The kappa value 0.78, ▪Sensitivity 0.85, ▪Specificity 0.96, ▪Positive predictive value 0.82, and negative predictive value 0.97	▪General interview	Interview	▪Clinical ▪Research settings	34 languages	N/A	This is a structured diagnostic interview for DSM-IV and ICD-10 psychiatric disorders.

Table3. 1
Description of the PTSD following childbirth measures

1	2	3	4	5	6	7	8	9	10	11	12	13	14
12. PCL-C Checklist Civilian Version Weathers et al. 1994 USA	▪Different traumatic events -N/A	2	▪To assess the severity of PTSD symptoms	17 /5	▪Intrusion (5 items) ▪Avoidance (7 items) ▪Hyper arousal (5 items)	▪α = 0.94 ▪Retest (r = 0.66/96.	A correlation 0.61 with the TSC =.	▪3 criteria listed in the DSM-IV ▪ Intrusion ▪Avoidance ▪Hyper arousal	Self-report	N/A	N/A	▪It fits any time frames or events	There are multiple versions of this measure, the PCL-Military, the PCL-S (which is affixed to a precise stressor), and the PCL-C, which enquires and gathers reactions to traumatic life incidences. A parent study on infant symptoms is also available (PCL-PR).
13. DTS Davidson Trauma Scale Davidson et al. 1997 USA	▪All types of trauma -N/A	1	▪To assess the severity and frequency of PTSD profiles.	17/5	▪Intrusion (5 items) ▪Avoidance (7 items) ▪Hyper arousal (5 items)	▪Retest 0.86 ▪α = 0.99	▪Concurrent validity with the (SCID) 83% ▪Sensitivity 0.69 ▪Specificity 0.95,	▪3 criteria listed in the DSM-IV ▪Intrusion ▪Avoidance ▪Hyper arousal	Self-report	N/A	N/A	▪Past 7 days	None

Table3. 1
Description of the PTSD following childbirth measures

1	2	3	4	5	6	7	8	9	10	11	12	13	14
14. PTCS Posttraumatic childbirth stress inventory Sorenson, 2000b, 2003 USA	▪Childbirth -N/A	1	▪To assess the severity of PTSD symptoms.	15/5	N/A	▪α = 0.94	N/A	▪3 criteria listed in the DSM-IV ▪Intrusion ▪Avoidance ▪Hyper arousal	Self-report	N/A	N/A	N/A	None
15. PTSD-I Post-Traumatic Stress Disorder Interview Watson et al. 1991 USA	▪All types of trauma -N/A	1	▪A correspondence to DSM-111 standards and to evaluate the PTSD symptoms.	17 /7	▪Intrusion (5 items) ▪Avoidance (7 items) ▪Hyper arousal (5 items)	▪α = 0.92 ▪Retest r = 0.95	Diagnostic agreement = 87%	▪3 criteria listed in the DSM-IV ▪Intrusion ▪Avoidance ▪Hyper arousal	-	-	-	-	It follows the DSM-III-R version. It is provided by professionals. It has significant reliability and validity.
16. TLEQ The Traumatic Life Events Questionnaire Kubany et al. 2000 USA	▪22 types of potentially traumatic events. -N/A	1	▪To evaluate the history of traumatic incidences.	23 /5	N/A	-	-	-	-	-	-	-	

Table3. 1
Description of the PTSD following childbirth measures

1	2	3	4	5	6	7	8	9	10	11	12	13	14
17. TEQ The Traumatic Events Questionnaire Vrana & Lauterbach, 1994 USA	-	1	▪To evaluate different traumatic encounters, not associated with birth	-	-	-	-	-	-	-	-	-	
18. CAPS The Clinician Administered PTSD Scale Blake et al. 1995 USA	-	1	▪It is a gold standard for the identification of PTSD. It can be used for concurrent validity of the PDS scale	-	-	-	-	-	-	-	-	-	

Note. 1. Measure's name/ authors/ date/ country. 2. Type of trauma/ Applied to/ Age range. 3. Number of studies that used it. 4. Aim. 5. Items total/ Scaling responses. 6. Sub-scales. 7. Reliability. 8. Validity. 9. Criteria coverage. 10. Mode of completion. 11. Setting. 12.Translation. 13.Timing of assessment 14. Note.

CHAPTER FOUR

THE PREVALENCES AND DIFFERENCES BETWEEN BRITISH AND SAUDI SAMPLES IN SYMPTOMS OF PTSD FOLLOWING CHILDBIRTH

4.1 Abstract

It is becoming more widely recognised that some women develop post-traumatic stress disorder (PTSD) following childbirth. To date, no studies have examined the prevalence rate of PTSD following childbirth among Arabic and Saudi women within Saudi culture. This study is aimed at estimating the prevalence of PTSD following childbirth in Saudi Arabia and comparing this with a British sample. A total of 532 (408 Saudi and 124 British) new mothers were recruited online and from clinics in Saudi Arabia and Britain. These mothers completed the Post Traumatic Stress Diagnostic Scale (PDS) and the Hospital Anxiety and Depression Scale (HADS), whilst also providing demographic information at 1–12 months postpartum (mean = 9.5 months). A total of 14.7% displayed symptoms that met the clinical criteria for diagnosis of PTSD following childbirth (14.7% of the Saudi sample and 14.5% of the British sample). Pearson's chi-squared indicated that there were no significant differences between the frequencies of the women in the British and in the Saudi group, who met the PTSD criteria following childbirth. However, the Saudi women scored significantly higher on anxiety and depression as well as the symptoms of PTSD than the British women. Half of the British women who met the PTSD criteria following childbirth had a history of psychological difficulties, which is a higher frequency than expected. These results provide significant information regarding PTSD following childbirth in Saudi Arabia, which will help in developing prevention and treatment programmes within its perinatal healthcare system.

4.2 Introduction

Childbirth is understood as a normative event in women's lives. Giving birth is a time that involves significant psychological and neural-hormonal changes that may present challenges to a woman that require substantial adjustment (Ayers & Ford, 2009). The majority of women have positive experiences after giving birth, but a significant proportion encounter difficulties or even traumatic experiences during or after giving birth (Iles et al., 2011). Clinical experience and research have shown that women who are unable to cope with disturbing experiences effectively may develop symptoms identical to those found in persons suffering from PTSD (Menage, 993). There is increasing recognition that labour and childbirth can activate the symptoms of PTSD in some women, if it falls out with their previous typical human/life experience, but not necessarily outside the more general range of human experience. Ballard et al. (1995) and Wijma et al. (1997) agreed that a traumatic process during labour or the delivery process, and throughout pregnancy itself, might act as a trigger for PTSD.

Studies have reported 24-34% of women showing some symptoms of PTSD following childbirth in Europe and Australia, whilst others have found that 2.8–5.6% inof women in the UK develop clinically diagnosable PTSD following childbirth (Olde et al., 2006; Nyberg et al., 2010). Recently, it has been asserted that the percentage of women who experience traumatic childbirths is 14.3% (Boorman et al., 2014). However, in most cases, the prevalence of PTSD following childbirth has been found to be between 1 and 9% (Ayers & Ford, 2009; Ayers et al., 2008), with some studies reporting up to 26% (Engelhard et al., 2006), taking into account that a significant number of women experiencing the process of labour as a traumatic event, only a minority develop PTSD (Kleber et al., 1992).

Researchers have come to different conclusions regarding the prevalence of PTSD following childbirth, depending on different type of factors investigated, which have

included socio-demographic factors (Lyons, 1998; Wijma et al., 1997; Czarnocka & Slade, 2000) (e.g. age, education), pregnancy, labour and delivery-related factors (Ayers & Pickering, 2001), obstetrical interventions (Creedy, Shochet, & Horsfall, 2000), coping or expectations of labour and birth (Soet et al., 2003; Czarnocka & Slade, 2000), psychological history (Wijma et al., 1997; Ayers & Pickering, 2001) (e.g., depression during pregnancy) as well as methodological factors, such as the population of study, types of measurements used and period of focus (Ayers et al., 2008). Moreover, several self-assessment methods have been employed to evaluate all the PTSD criteria, whilst some measures evaluate just part of them and thus, it remains undetermined whether women are suffering from clinically diagnosable PTSD or just some PTSD symptoms. Further, the majority of previous studies have involved using standard scales that have been adapted to childbirth-specific situations (Verreault et al., 2012). Additionally, the sample characteristics (e.g. being a first time mother or multiparous, having a traumatic or normal birth experience, at home or hospital delivered, attending antenatal classes or not) and recruitment method (e.g. through a clinic, hospital or online) could impact on the results (Olde et al., 2006).

Studies investigating the prevalence rates of postnatal disorders across cultures have suggested similar prevalence rates in the USA, Australia and Europe (i.e. the UK, Italy, Sweden and the Netherlands) (Ayers et al., 2008). Other studies (e.g. Hanlon et al., 2009) have found lower rates of postnatal disorders in non-Western nations, such as Ethiopia, with others showing higher rates of PTSD following childbirth in comparison with Western, high income nations. For example, Adewuya et al. (2006) found 5.9% of Nigerian women developed PTSD following birth and similarly, Zambaldi, Cantilino, & Sougey (2011) found that in Brazil, 5.3% of women did so. Other research was focused on Arab and Israeli Jewish women in Israel (Halperin et al., 2015), where no difference between these two groups in relation to the prevalence of PTSD following childbirth was found. Only 16 women (N=171,

9.4%) met the clinical criteria of PTSD; nine of them Jewish (N=115, 7.8%), and seven Arab (N=56, 12.5%)

Generally, the wide differences in the existing studies make it difficult to come to a clear conclusion regarding the prevalence rates of PTSD symptoms across different cultures. As the majority of studies originated from Western cultures, they are unlikely to be generalisable to non-Western ones, which have developed individualised approaches for treating these problems based on cultural understanding and circumstances (Al-twaijri, & Al-muhaiza, 1996). For example, there is a widespread belief in Middle Eastern countries that mental illness is caused through possession by demons, with God's will being a determinant of all events, including symptoms, such as those manifesting themselves in PTSD, which may lead to reduced reporting of any suffering. To the extent that psychological approaches depend on culturally specific beliefs, they may not be applicable or effective in other cultures (or within ethnic groups) without considerable adaptation. Hence, it is important to have a clear understanding of the existence of PTSD following childbirth and its prevalence in different cultures, such as Saudi Arabia.

Saudi Arabian beliefs and cultural behaviours come from Islamic concepts, especially in relation to marriage, birth, divorce, and child rearing. Within Saudi culture, the family is considered to be the essential foundation of an individual's ranking and personhood. This gives childbirth a significant priority and importance with cultural and religious principles. Nonetheless, the Saudi Arabian birthing process is comparable to the birthing process in Western nations. For example, more than ninety percent of babies in Saudi Arabia are born in hospitals (WHO, 2013). A widely held view amongst its population is that birth is a natural phenomenon that indicates God's power and, thus, children are presents from God and serve as a way to connect with him. That is, birth is a religious experience, whereby it allows individuals to worship God and obtain a more intimate relationship with him.

Furthermore, when women pass away during childbirth, is considered as obtaining God's forgiveness and, thus, some women understand a traumatic birth experience as a test from God that allows her to make amends for previous wrong-doings. This can result in some women accepting a traumatic birth and trying to deny the pain (Latifnejad Roudsari, Zakerihamidi & Merghati Khoei, 2015).

Within Saudi Arabia, once the child has arrived, the mothers typically reside in their parents' home, thus, receiving help and protection, whilst also welcoming others, such as family and friends, to visit and rejoice. The new mothers receive presents such as infant clothes, flowers, sweets, and so forth. This period lasts for forty days, and is known as Al nofas. During this time, the entire family helps care for the new child and aids the mother in recuperating. Hence, cultural norms, and social networks have a significant influence on the birthing process and adjustment postnatally.

In regards to the research setting, PTSD following childbirth is a known fact (Olde et al., 2006), which is under-pinned, by a large body of literature into its causes, effects, treatments and rate of occurrence. However, the potential cultural impact on the reported rate of prevalence has had little focus in previous research. Hence, this study was conduct with the aim of fill the knowledge gap by comparing two contrasting cultures in terms of the prevalence of PTSD symptoms in new mothers following childbirth. Specifically, it involved examining both the reported occurrence of PTSD and the impact of two cultures: Saudi Arabia and Britain.

4.3 Research Questions

In this chapter, the following research questions are addressed:

1- What are the prevalences of women who meet the PTSD criteria following childbirth in Saudi Arabia and Britain?

2- What are the differences in reports of PTSD symptoms (not necessarily reaching diagnosable PTSD criteria), depression and anxiety symptoms following childbirth in the two cultures?
3- What are the demographic differences among women who have met the PTSD criteria and women who have not met the PTSD following childbirth in both samples?

4.4 Method

4.4.1 Procedure

This study is part of the procedure of the main study, which is reported in three Chapters (4-5-6), with all of them having the same procedures and sample, while the measures utilised are different based on each chapter's aims. See Chapter 2 for more details.

4.4.2 Measures

Participants completed, along with a demographics questionnaire, The Posttraumatic Stress Diagnostic Scale (PDS: Foa, 1995) and The Hospital Anxiety and Depression Scale (HADS: Zigmond and Snaith,1983). In addition, participants completed other measures as part of this study, which are reported in other chapters. Further descriptions can be found in the Methods section in Chapter 2.

4.4.3 Participants

The participants totalled 532 (408 Saudi and 124 British) women, who had given birth for the first time in the last year. The demographic characteristics of the sample can be seen in Tables 2.1 and 2.2, which are presented in Methods section in Chapter 2,.

4.4.4 Statistical analysis

SPSS version 23 statistical software was used to analyse the data. Initially, the prevalence of women who reached PTSD criteria was calculated by percentage and frequencies. This was generated by assessing each of the six PTSD criteria that were necessary for the clinical diagnosis that are identified in the DSM-IV-TR (Foa, 1995). To meet the criteria, the participant had to report: (a) a traumatic event (childbirth); (b) one or more symptoms of re-experiencing in the last year; (c) three or more symptoms of avoidance in the last year; (d) two or more symptoms of hyper arousal in the last year; (e) a duration of symptoms of at least one month; and (f) significant impairment in functioning as a result of the above symptoms. Participants who met all of the six criteria were recorded as having a potential PTSD clinical diagnosis. The differences between the Saudi and British samples in the categorical variables were explored using Chi-squared analyses. Because the sub-group numbers were too small for analysis to be meaningful at a more fine-grained level, interpretation of the differences between them relied on the descriptive statistics. Also, Mann-Whitney testing was used to examine group differences in the continuous variables.

4.5 Results

4.5.1 Differences between the British and Saudi samples

There were differences between British and Saudi sample in terms of education, income, occupation, delivery type, contraction types, use of pain relievers and previous psychological difficulty. The range of age in the British sample was higher than for the Saudi sample. Saudi women were more likely to be less educated, unemployed and of lower income compared with British women. Also, Saudi women were more likely to have had a normal vaginal delivery, induced contraction, and used fewer pain relievers and had a lower history of psychological difficulty than the British women, who in turn, had more caesarean

sections. The experience of abortion and the months that had passed since the birth were not different between the Saudi and British groups (see Tables 4.1 and 4.2).

Table4. 1
Chi-squared tests to compare the Saudi and British samples for the categorical variables

		Saudi		British	
		% Within the Saudi sample		% Within the British sample	
		N	Percentage	N	Percentage
Education	Less than high school	36	(8.9%)	1	(0.8%)
	High school graduate	119	(29.3%)	4	(3.3%)
	niversity / college	216	(53.2%)	49	(40.8%)
	Post graduate degree	33	(8.1%)	53	(44.2%)
	Other (Trade/technical/ training / diploma)	2	(0.5%)	13	(10.8%)
	($\chi2$=146.35, df=4, p<.0001)				
Income	Low Under (£30,000)	143	(45.4%)	28	(23.1%)
	Average (£30,000-£45,000)	102	(32.4%)	34	(28.1%)
	Above (average £45,000-£60,000)	44	(14.0%)	21	(17.4%)
	High (£60,000-£75,000)	15	(4.8%)	14	(11.6%)
	Very high £75,000+	11	(3.5%)	24	(19.8%)
	($\chi2$=47.405, df=4, p<.0001)				
Occupational	Unemployed	222	(54.8%)	6	(4.9%)
	Employed full time	92	(22.7%)	90	(73.2%)
	Employed part time	21	(5.2%)	11	(8.9%)
	Self employed	20	(4.9%)	6	(4.9%)
	Student	47	(11.6%)	3	(2.4%)
	Retired	1	(0.2%)	7	(5.7%)
	Other	2	(0.5%)	0	(0.0%)
	($\chi2$=153.79, df=6, p<.0001)				
Delivery	Normal vaginal delivery	285	(70.0%)	54	(43.5%)
	Caesarean section	105	(25.8%)	36	(29.0%)
	Assisted delivery	17	(4.2%)	32	(25.8%)
	Other	0	(0.0%)	2	(1.6%)
	($\chi2$=65.56, df=3, p<.0001)				
Contraction	Natural Contraction	40	(36.4%)	47	(85.5%)
	Induced Contraction	64	(58.2%)	8	(14.5%)
	Natural +Induced	6	(5.5%)	0	(0.0%)
	($\chi2$=35.75, df=2, p<.0001)				
	Nothing	139	(35.1%)	9	(7.5%)
	Hydrotherapy	4	(1.0%)	13	(10.8%)

Table4. 1
Chi-squared tests to compare the Saudi and British samples for the categorical variables

		Saudi		British	
		% Within the Saudi sample		% Within the British sample	
		N	Percentage	N	Percentage
Using pain relievers	Gas and air (entonox)	84	(21.2%)	29	(24.2%)
	Pethidine injections	77	(19.4%)	15	(12.5%)
	Epidural anaesthesia	77	(19.4%)	47	(39.2%)
	Mix of 2+5	0	(0.0%)	4	(3.3%)
	Other	15	(3.8%)	3	(2.5%)
(χ2=82.836, df=6, p<.0001)					
Psychological difficulty	No	381	(93.4%)	94	(75.8%)
	Yes	27	(6.6%)	30	(24.2%)
(χ2=30.70, df=1, p<.0001)					
Time since the birth	Less than one month	82	(20.5%)	10	(8.1%)
	1 to less than 3 months	37	(9.3%)	17	(13.7%)
	3 to less than 6 months	62	(15.5%)	26	(21.0%)
	6 to less than 9 months	71	(17.8%)	29	(23.4%)
	9 to 12 months	148	(37.0%)	42	(33.9%)
(χ2=13.68, df=4, p >.0001)					
Abortion	No	352	(86.5%)	108	(87.1%)
	Yes	55	(13.5%)	16	(12.9%)
(χ^2=.031, df=1, p >.0001)					

Note. χ^2= Chi-squared. df= degrees of freedom

Table 4. 2
Mann-Whitney tests to compare the Saudi and British samples for the PDS and HADS

Variables	Saudi		British			
	N	Mdn	N	Mdn	U	P
Ages in years	299	26.00	107	31.00	23.41	<.0001
(PDS) – Intrusion Symptoms	408	2.50	124	1.00	19900.0	<.0001
(PDS) - Avoidance	408	4.00	124	2.00	20977.0	.003
(PDS) - Hyper arousal	408	4.00	124	2.00	21423.0	.009
(PDS) - Duration	408	3.00	124	4.00	19642.5	<.0001
(PDS) - Functional	408	3.00	124	1.00	19392.5	<.0001
(PDS) – Total	408	19.00	124	11.00	20705.5	.002
(HADS) _ Anxiety	380	11.00	102	7.00	8355.5	<.0001
(HADS) _ Depression	379	12.00	102	5.00	3938.0	<.0001
(HADS) _ Total	380	23.00	102	12.00	5111.0	<.001

*Note. N=Sample size. Mdn=Median. U=Mann-Whitney. p=p-values,(PDS) The Posttraumatic Stress Diagnostic Scale. (HADS) The Hospital Anxiety and Depression Scale.

4.5.2 The proportion of women who met the PTSD criteria following childbirth in the Saudi and British samples

14.7% of the whole sample (N= 78/532) displayed symptoms that met the clinical criteria for a diagnosis of PTSD following childbirth. Moreover, 14.7% of the Saudi sample (N=60/408) displayed PTSD following childbirth, whilst 14.5% of the British sample (N=18/124) did so. The results of Pearson's chi-squared tests indicate that there were no significant differences in the proportion of women satisfying the criteria for PTSD following childbirth between the British and Saudi sample (see Table 4.3).

4.5.3 The differences in reports of PTSD symptoms, depression and anxiety symptoms following childbirth in the two cultures

The results of the Mann-Whitney tests indicate that Saudi women reported more PTSD, anxiety and depression symptoms than the British sample (see Table 4.2).

Table4. 3
Chi squared test to compare the proportion of women displaying PTSD symptoms following childbirth between the British and Saudi samples

PTSD	The percentage within the country group	
	Saudi (n=408).	British (n=124)
Criteria not met	348 (85.3%)	106 (85.5%)
Criteria met	60 (14.7%)	18 (14.5%)

Note. χ^2=.958, df=1. p=1.00

4.5.4 Demographic differences among women who met the PTSD criteria and those who did not following childbirth in both samples

The Pearson's chi-squared test results point to no significant demographic differences among those women who had and had not satisfied the PTSD criteria following childbirth in the Saudi sample in relation to education, marital status, occupational, household income, nationality, use of pain relievers, abortion and religion. (see Table 4.4). However, the time that had passed since the birth, delivery type, contraction type and history of previous psychological difficulties, were significantly different when comparing those Saudi women who did and did not meet the criteria (see Table 4.4). Significant chi-square analyses were followed up with post hoc 2x2 chi square analyses (Table 4.5), which showed that the Saudi women who met the PTSD diagnostic criteria were more likely to have had an assisted delivery, experienced natural contractions, be within 9-12 months postpartum,

and were more likely to have reported previous psychological difficulty than the Saudi who did not meet PTSD criteria.

In the British sample, there were no significant differences among women who met or had not met the criteria for PTSD following childbirth in relation to education, marital status, occupation, ethnicity, household income, delivery type, contraction type, time that had passed since the birth, abortion, and religion. These non-significant analyses can be seen in Appendix C-3. The initial omnibus chi-square analysis suggests that there were pain relief effects on whether or not British women reached the criteria for PTSD. However, the post hoc 2x2 chi-squares did not show any significant effects of type of pain relief (Table 4.5). Post-hoc chi square analyses (Table 4.5) also showed that whilst the majority of British women who did not meet the PTSD criteria had not had previous psychological difficulties, and the women who did so (18), half of them (9) had a history of psychological difficulties, which is a higher frequency than expected. See Table 4.5 for the significant and the non-significant differences.

Table 4. 4
The significant differences from Chi Square between women who met the PTSD criteria and who did not following childbirth, for both the Saudi and British samples

Variables	Sub scales	PTSD criteria not met		PTSD criteria met	
		N	**%**	**N**	**%**
		Saudi (n=408)			
Delivery	Normal vaginal delivery	240	59	45	11.1
	Assisted delivery	11	2.7	6	1,5
	Caesarean section	96	23.6	9	2.2
	Other	0	0.0	0	0.0
	Total	347	85.3	60	14.7
		(χ2=9.14, df=2, p=.010)			
Contraction	Natural Contraction	27	24.5	13	11.8
	Induced Contraction	56	50.9	8	7.3
	Natural + Induced	6	5.5	0	0.0
	Total	89	80.9	21	19.1
		(χ^2=7.87, df=2, p=.020)			
Time since the birth	Less than one month	73	18.3	9	2.3
	1 to less than 3 months	32	8.0	5	1.3
	3 to less than 6 months	54	13.5	8	2.0
	6 to less than 9 months	66	16.5	5	1.3
	9 to 12 months	116	29.0	32	8.0
	Total	341	85.3	59	14.8
		(χ2=10.05, df=4, p=.040)			
Using pain relievers	Nothing	9	7.5	0	0.0
	Hydrotherapy	12	10.0	1	0.8
	Gas and air (Entonox)	25	20.8	4	3.3
	Pethidine injections	13	10.8	2	1.7

Table 4. 4
The significant differences from Chi Square between women who met the PTSD criteria and who did not following childbirth, for both the Saudi and British samples

Variables	Sub scales	PTSD criteria not met		PTSD criteria met	
		N	%	N	%
		British (n=124)			
Using pain relievers	Epidural anaesthesia	40	33.3	7	5.8
	Other	3	2.5	0	0.0
	Mix of 2+5	1	0.8	3	2.5
	Total	103	85.8	17	14.2
		(χ^2=14.635, df=5, p=.023)			

Variables	Sub scales	PTSD criteria not met		PTSD criteria met		PTSD criteria not met		PTSD criteria met	
		N	%	N	%	N	%	N	%
		Saudi (n=408)				British (n=124)			
Psychological Difficulties	No	329	80.6	52	12.	85	68.5	9	7.3
	Yes	19	4.7	8	2.0	21	16.9	9	7.2
	Total	348	85.3	60	14.	106	85.5	18	14.5
		(χ^2 = 5.13, df= 1, p= .023)				(χ^2 = 7.64, df= 1, p= .006)			

Note. χ2= Chi-square. df=degrees of freedom

Table 4.5
Chi square post hoc tests for the significant omnibus analyses

V	Sub scales	PTSD criteria not met			PTSD criteria met		
			N	%	N	%	
			Saudi (n=408)				
Delivery	Normal vaginal	No	107	87.7	15	12.3	($\chi2$ = .575, df= 1, p= .488)
		Yes	240	84.2	45	15.8	
	Assisted delivery	No	336	86.2	54	13.8	($\chi2$ = 4.37, df= 1, p= .036)
		Yes	11	64.7	6	35.3	
	Caesarean section	No	251	83.1	51	16.9	($\chi2$ = 3.65, df= 1, p= .056)
		Yes	96	91.4	9	8.6	
Contraction	Natural contraction	No	62	88.6	8	11.4	($\chi2$ = 6.01, df= 1, p= .014)
		Yes	27	67.5	13	32.5	
	Induced contraction	No	33	71.7	13	28.3	($\chi2$ = 3.34, df= 1, p= .067)
		Yes	56	87.5	8	12.5	
	Natural+ Induced		Not sufficient data				
Time since the birth	Less than one month	No	268	84.3	50	15.7	($\chi2$ = .821, df= 1, p= .365)
		Yes	73	89.0	9	11.0	
	1 to less than 3 months	No	309	85.1	54	14.9	($\chi2$ = .000, df= 1, p= 1.00)
		Yes	32	86.5	5	13.5	
	3 to less than 6 months	No	287	84.9	51	15.1	($\chi2$ = .063, df= 1, p= .802)
		Yes	54	87.1	8	12.9	
	6 to less than 9 months	No	275	83.6	54	16.4	($\chi2$ = 3.36, df= 1, p= .067)
		Yes	66	93.0	5	7.0	
	9 to 12 months	No	225	89.3	27	10.7	($\chi2$ = 7.97, df= 1, p= .005)
		Yes	116	68.4	32	21.6	
			British (n=124)				
Using pain relievers	Nothing	No	94	84.7	17	15.3	(χ^2 = .593, df= 1, p= .441)
		Yes	9	100	0	0	
	Hydrotherapy	No	91	85	16	15	$\chi2$ = .083, df= 1, p= .774)
		Yes	12	92.3	1	7.7	
	Gas and air (Entonox)	No	78	85.7	13	14.3	$\chi2$ = .000, df= 1, p= 1.00)
		Yes	25	86.2	4	13.8	
	Pethidine injections	No	90	84.9	16	15.1	($\chi2$ = .155, df= 1, p= .793)
		Yes	13	92.9	1	7.1	
	Epidural anaesthesia	No	63	86.3	10	13.7	($\chi2$ = .000, df= 1, p= 1.00)
		Yes	40	85.1	7	14.9	

Table 4.6

Chi square post hoc tests for the significant omnibus analyses

V		Sub scales	PTSD criteria not met		PTSD criteria met		
			N	%	N	%	
Psychological.	Difficulties	Saudi	No	329	86.4	52	13.6	($\chi2$ = 3.93, df= 1, p= .047)
			Yes	19	70.4	8	29.6	
		British	No	85	90.4	9	9.6	($\chi2$ = 6.08, df= 1, p= .014)
			Yes	21	70	9	30	

Note. $\chi2$= Chi-square. df= degrees of freedom

4.6 Discussion

Research into the prevalence of PTSD has been mostly focused on women from Western cultures. The current study was aimed at bridging this gap by investigating the impact of Saudi Arabian culture on the reported incidence of PTSD following childbirth, according to some demographic and birth experience variables, whilst also comparing the findings with those regarding the rate reported in Britain in relation to the identified variables.

Whilst the results indicated a similar rate and no differences in potentially diagnosable PTSD following childbirth between these two cultures, on average, Saudi women had more PTSD symptoms than the British ones. Also, they were more likely to be less educated, have low incomes, less employment, have attempted to experience a normal vaginal delivery and be more dependent on induced contraction than the British women, who were more likely to have a caesarean section, use more pain relievers during labour and were more likely to report a history of psychological difficulty than their counterparts.

Whilst the reported rate of 14.7% is high, this is in keeping with some other studies' findings, such as one in Australia ((Boorman et al., 2014), which found that the percentage of women who experienced traumatic childbirth was 14.3% and Iranian research, which elicited that 17. 2% of women had symptoms of PTSD following childbirth based on

the PTSD Symptom Scale (PSS: Foa et al., 1993) (Shaban et al., 2013). However, the rate is slightly higher those presented in other studies (Ayers & Wright, 2007; Creedy et al., 2000; Menage, 1993; Zaers et al., 2008). From a wider perspective, probing the prevalence of PTSD across cultures (in general, not following childbirth), Al-Saffar et al. (2003) studied four ethnic groups in outpatient psychiatry, who had immigrated to Sweden at least four years prior to the study, and a similar sample of Swedish-born patients. They found that the rate of PTSD in the Iranian sample was 69%, Arabs 59%, Turkish 53% and Swedes 29%. This result suggests that non-Western countries have a higher PTSD rate than Western, given that the Swedes were found to have a low risk. One reason for the high rate in this study is that self-report tools, as used in the study, generally yield a higher frequency of different disorders than those based on interviews, but they are not necessarily inaccurate (Bowling, 2005).

As mentioned above, there was no difference in the percentage of Saudi and British women who satisfied the PTSD criteria. Nonetheless, there were differences in the PTSD symptoms between them based on the PDS (Foa, 1995) scores. It is well known that its symptoms overlap with those of anxiety and depression (Czarnocka and Slade, 2000; Ballard et al., 1995; Reynolds, 1997) (e.g. irritability, difficulty sleeping, feeling numb, empty and helpless, feeling tired and lacking energy, and feeling tearful or crying a lot) DSM-IV (American Psychiatric Association, 1994). Consequently, the increase in PTSD symptoms in the Saudi group may be because of a higher rate of other disorder symptoms (anxiety, depression) that are common in the postnatal period (Bailham & Joseph, 2013). This is supported by the fact that the Saudi sample had higher scores on the Hospital Anxiety and Depression Scale (HADS: Zigmond and Snaith [1983]) than did British mothers. Also, this is supported by Al-Modayfer et al. (2015), who found that 14% of Saudi women developed postpartum depression (PPD), while Gavin et al. (2005) elicited that the prevalence of PPD

among British women is 11.0%. So, the women therefore endorse more of the symptoms of PTSD as an overlap with the postnatal depression symptoms.

Moreover, in this study, emerged that more women who met the criteria for PTSD following birth recorded their responses during the second half not the initial one, of the year after giving birth. These outcomes suggest that PTSD symptoms increase with the time following birth in both cultures. This result is contrary to the outcomes of Denis et al. (2011) and Olde et al. (2006), who contended that PTSD symptoms are reduced over time following birth.

The Saudi women who met the diagnostic criteria for PTSD were more likely to be within 9-12 months postpartum, have had an assisted delivery than another type of delivery, experienced natural contraction than any other form, and they had previous psychological difficulty when compared with those who did not meet these criteria.

Half of the British women who met the PTSD criteria had a history of psychological difficulties, which is a higher frequency than expected. These findings are consistent with work by Wijma et al. (1997), who identified a positive correlation between women's history of psychological difficulty and PTSD following childbirth. This result is unsurprising, given that it is widely established that prior psychological adjustment is also a risk factor for the development of PTSD more generally (Ozer et al., 2008). However, caution must be applied in the interpretation of these findings, given that the overall British sample size was relatively small (n=124). The sample size of the British women who met the PTSD criteria was 18 women, of whom nine had a history of psychological difficulties. Hence, further research is needed to replicate this finding with a larger sample.

The finding that Saudi women who met the PTSD criteria were more likely to have had an assisted delivery is consistent with the literature, which has shown that complicated deliveries have a greater probability of a mother developing PTSD symptoms due to

unexpected outcomes and the pain involved (MaClean, McDermott, & May, 2000). Generally, all types of birth can result in PTSD symptoms, with an increased chance of developing more symptoms if the experience was subjectively traumatic, rather than being merely objectively so (Ford & Ayers., 2011; Montmasson et al., 2012).

4.7 Strengths and limitations

To the best of this researcher's knowledge, this work is the first of its kind: a cross-cultural study conducted in an Arabic and a Western country, to evaluate PTSD following childbirth. The data gathered included representation of women from diverse backgrounds and nationalities living in Saudi Arabia. These women originally came from Arabic countries (Egypt; Syria; Jordan; Iraqi; Sudan; Yemen; Palestine) and African ones (Eritrea; Somalia; Chad), so these results could be generalised to Arabic women. Also, the research involved basing diagnosis on using the Posttraumatic Diagnostic Scale (PDS) (Foa, 1997), which screens and assesses all the PTSD criteria in DSM-IV and received the highest quality score in the systematic review of scales measuring PTSD following childbirth (see Chapter 3). Moreover, this study is the first that has involved translating the PDS scale to the Arabic language and demonstrating its reliability for application to women following birth in Saudi Arabia.

There are a number of limitations. The British sample size was relatively small in comparison with the Saudi sample, so the British prevalence rates may be less suited to generalisation due to the sample size and association with low-risk populations. In addition, the study was dependent on self-reported information from new mothers, which introduces the possibility of a social desirability response bias. Although it was taken into account while applying this study to ask the women to response to the childbirth event not any other traumatic event, however, it is possible that subsequent traumatic events before or since the

birth have had an effect on the results. Such events could be systematically taken into account in future studies.

The research outcomes suggest that 14.7% of the Saudi women and 14.5% of the British displayed PTSD following childbirth, with there thus being no significant difference in the percentage meeting the criteria between these two cultures. However, Saudi women reported more PTSD symptoms, and scored higher on anxiety and depression than their British counterparts. Moreover, British women, who had satisfied the criteria for PTSD following childbirth were less likely to have had previous psychological difficulty, than the Saudi women who met them. These results enrich the cross-cultural research regarding PTSD following childbirth and can help in developing strategies for detecting PTSD following childbirth within the Saudi Arabia perinatal healthcare system.

CHAPTER FIVE

THE RISK FACTORS AND ASSOCIATION BETWEEN ASSUMPTIONS, RELIGION, SOCIAL SUPPORT, ANXIETY, DEPRESSION AND PTSD FOLLOWING CHILDBIRTH

5.1 Abstract

The goals of the present study were to examine the key vulnerabilities and predictors related to the development of PTSD symptoms within one year following childbirth in a non-Western country (Saudi Arabia) compared with Britain. A total of 532 new mothers (408 Saudi and 124 British) were recruited online and from clinics. Participants completed the Post Traumatic Stress Diagnostic Scale (PDS), the World Assumption Scale (WAS), the Multidimensional Measure of Religious Involvement (MMRI), the Multidimensional Profile of Social Support (MSPSS), and the Hospital Anxiety and Depression Scale (HADS), when they were 1–12 months post-partum (mean = 9.5 months). Negative assumptions about the world, luck and self-control factors, lack of support from a significant other, high anxiety and depression were the vulnerability factors shown to be important in postpartum PTSD in both cultures. Using a stepwise multiple regression, greater anxiety levels and less available social support from significant others were crucial PTSD symptom predictors following childbirth. There were no clear differences between the two cultures when it came to vulnerability factors. The results show that negative assumptions, lack of social support, anxiety and depression could all increase the probability of developing PTSD following childbirth. The findings highlight the importance of screening and providing more tailored services for women at high risk.

5.2 Introduction

Across the world, health organisations and national administrations understand that women's health throughout their pregnancy and following giving birth is very important. Giving birth can be seen as a significantly influential, and stressful, occurrence in a woman's life (Cohen, Ansara, Schei, Stuckless, & Steward, 2004; Soet et al., 2003). Increased responsibilities and change in priorities in this period are linked with cognitive and interpersonal issues for the mothers and the children (Glasheen et al., 2010). It has been noted across empirical and clinical research, that stressful birth can cause mental health issues, such as postnatal PTSD (Alcorn et al., 2010; Ayers & Pickering, 2001; Bailham & Joseph, 2003).

Research into PTSD following childbirth draws a framework of risk factors that could play a role in the development of postnatal PTSD (Ayers, 2004; Maggioni, Margola,, & Filippi, 2006; Slade, 2006; Soderquist at al., 2006; Soet et al., 2003; Van Son et al., 2005). For example, vulnerability factors include a history of emotional distress (anxiety, depression, and psychological difficulties) (Ayers et al., 2009; Ford & Ayers, 2011), cognitive factors, like world assumptions (Brewin et al., 2000; Janoff-Bulman, 1989; Karam et al., 2010; Soderquist et al., 2009; Zambaldi et al., 2011; Wijma et al., 1997) and social support from midwife, partner, family and friends (Johnson &Thompson, 2008; Monsonetal, 2009). All these factors may play a role in determining the psychological responses to trauma when there are complications of labour. In the following, one way of understanding PTSD symptoms in postpartum women based on Janoff-Bulman's (1992) theory of shattered assumptions is presented. Also, social support, religion, anxiety and depression in relation to PTSD symptoms following childbirth are considered.

Several theories have indicated that cognitions play an important role in the development of PTSD (Ehlers & Clark, 2000; Janoff-Bulman, 1992). Janoff-Bulman's

(1989, 1992) theory of shattered assumptions has been one of the most accepted theories that has provided a cognitive explanation of PTSD. Under the theory, it is hypothesised that people have developed assumptions about the world and the self, which are positive (Epstein & Lovitts, 1985). A traumatic event produces changes in the victims' thoughts and beliefs and presents information that is incompatible with these existing schemas (Horowitz, 1975). It shatters beliefs regarding personal invulnerability, benevolence of the world (the impersonal world is not benevolent), justice (bad events are not distributed according to justice principles), self-worth (one is not a worthy or virtuous person), self-control (one behaves irresponsibly) and controllability (events in the world cannot be controlled by people's behaviours) (Janoff-Bulman, 1989, 1992; Bolton & Hill, 1996; Horowitz, 1976, 1986). Individuals often take the responsibility for the bad luck as a mechanism to restore control over a situation that is uncontrollable and unexplainable. This hypothesis has been supported by various studies (Dekel et al., 2004; Janoff-Bulman, 1989; Solomon et al., 1997). It has been determined that traumatic events notably changed individuals' beliefs in the benevolence of the world. As an example, those who have suffered from significant trauma are more likely to have a negative view of the world, consider life to be pointless and view their environment as being hostile (Goldenberg & Matheson, 2005; Magwaza, 1999).

It is well known that childbirth events, for some women, are unpredictable, unpleasant and produce feelings of intense helplessness. Lyons (1998) highlighted how first-time mothers, in order to feel in control, usually have an idea of what they should expect through their delivery and if these assumptions are not met, then they may develop PTSD symptoms. Despite the fact that the vast majority of mothers stated they were satisfied with their antenatal preparation, almost half (42% in this study) had a childbirth experience below their expectations, whilst almost 31% went through unplanned medical interventions and these people tended to develop PTSD symptoms more than other mothers (Lyons, 1998).

Shattered assumptions regarding the childbirth experience may extend to the life or world assumptions that the woman has. To recover the assumptions that were impacted upon by a traumatic event, a coping strategy is needed. Lazarus (1993) stated how individuals try various coping strategies to mediate their negative feelings based on the stressful context.

Moreover, frequently, studies have shown that religious acts are a common and valuable way to cope with these situations (Gillum et al., 2006a; Senter & Caldwell, 2002). Religion has an impact on traumatic response and how individuals adjust to traumatic events (Rudnick, 1997). Firstly, religious beliefs can be developed over the traumatic involvement, and can be effective for individuals in their emotional recovery and healing following trauma. For many, religion can build a life attitude and serve as an integrating and stabilising strength that provides a framework for facing life's difficulties, such as misfortune, injustice and loss (Rudnick, 1997). Secondly, prior religious beliefs can be shattered through the experience of trauma (Khouzam, 2000; Rudnick, 1997; Siegel, & Schrimshaw, 2000; Schuster et al., 2001). Schuster et al., (2001) completed research in America during the aftermath of 9/11, where it emerged that 90% of the participants were seeking support from their religion. Individuals suffering from PTSD had returned to their religion and were practising their faith more than before compared to those without PTSD symptoms. Similarly, Hussain, Weisaeth, & Heir, (2011) reported that 8% of Norwegian tourists developed a strengthening of their religious beliefs after being involved in the 2004 tsunami; conversely, 5% reported a weakening of their religious beliefs. Meanwhile, Overcash, Calhoun, Cann, & Tedeschi, (1996) reported a lack of disruption to any religious involvement within a group of women following exposure to traumatic events. Trauma can be effectively transformed into a growth experience through religion and with a faith in God, a belief in an afterlife, through praying and/or attending religious services, which is presumably a form of social support (Parapully, Rosenbaum, van den Daele, and Nzewi,

2002). Nevertheless, it is uncertain whether there is any relation between PTSD symptoms following childbirth and religiosity, hence the purpose of this study.

Social support has its impact on the development and prevention of PTSD; individuals gain a sense of safety through social bonds that are vital defensive or susceptibility factors for the disorder (Creedy et al., 2000; Czarnocka & Slade, 2000; Ford & Ayers, 2009; Maggioni et al., 2006; Soet et al., 2003). Both positive and negative aspects of social support have differing forms of influence. Any negative responses or a lack of care, including any feeling of neglect from medical staff, has been shown to increase the risk of PTSD symptoms (Soet et al., 2003). Conversely, positive social reactions have been shown to reduce or prevent the likelihood of developing them (Taghizadeh, Jafarbegloo, Arbabi, & Faghihzadeh., 2007). However, the psychological value of positive social support is dependent on where the support arises and whether this support matches a specific need (Pilisuk & Parks, 1986; Punamaki, Komproe, Qouta, El-Masri, & de Jong, 2005).

Studies vary in terms of emphasising the effective sources of social support that women can receive following childbirth, whereby the spouse can offer it (Iles et al., 2011), family (Barnet et al., 1996; Chaaya et al., 2002) or others, e.g. friends, midwives, professional staff (Hodnett, 2000). However, their involvement can either decrease or increase the trauma symptoms. The relative impact of each is linked to the individual's needs, the cause of the trauma and the nature of the social or interpersonal relationships the individual has experienced over that time period (Hodnett, 2000).

As aforementioned, the majority of the previously published literature on PTSD following childbirth and the link to social support has been completed in Western cultures. It has been determined that culture has a significant influence on social support in that it shapes people’s understanding of the support that new mothers need (Feng & Burleson, 2006). As such, this study intended explore the sources of social support between two

different cultures and highlight the differences in the pattern of relationships between social support check meaning and PTSD symptoms following childbirth in Saudi Arabia and UK. It is anticipated that the findings will facilitate the development of an effective PTSD prevention and intervention strategy to protect new mothers following childbirth.

An individual's awareness of and expectations from support can also be affected by her mental health. It is likely that an individual who has faced trauma may later develop other mental health–symptoms like depression or anxiety (Kessler, Davis, & Kendler, 1997). Regarding which, it has been found that individuals who have had exposure to a traumatic event are twice as likely to develop depression than those who have not (Roberts, Damundu, Lomoro, & Sondorp, 2009). Moreover, there is a higher chance that women who have symptoms of depression also have significant symptoms of anxiety. The two often occur together at some point in the postpartum period, which is a time when the mother needs to adjust to the pressures, e.g. the new roles, new time demands, and responsibility (Brown, Campbell, Lehman, Grisham, &Mancill, 2001; Maser & Cloninger, 1990). However, it is essential to distinguish between PTSD symptoms, and other related disorders that may occur during the postpartum period, such as depression and 'baby blues' (a common low mood that 75% of mothers have following childbirth, which often heals naturally (O'Hara, Neunaber, & Zekoski, 1984) and anxiety disorders (which can be widely found where there is no depression) (Brown et al., 2001; Sholomskas et al., 1993). As a result, this research aimed to analyse these disorders in order to differentiate them. Additionally, depression and anxiety are both PTSD risk factors that have been identified in Western countries (Keogh et al., 2002), but not in non-Western contexts.

As has previously been mentioned, shattered assumptions and other risk factor variables including, social support, religion, depression and anxiety, are likely to play an important role in the development of post-partum PTSD symptoms as well as in rebalancing

mental health following a traumatic event. This is the first study in which these factors are considered in the form of vulnerability predictors of post-partum PTSD in two different cultures. That is, the focus is on these factors in a non-Western country setting (Saudi Arabia) and comparing the findings with those obtained in the UK.

5.3 Research Questions

This chapter addresses the following research questions

1- What are the differences, if any, between Saudi and British women regarding their world assumptions, religion, social support, anxiety and depression?

2- Do the women's assumptions have a relationship with the symptoms of PTSD following childbirth in the Saudi or British sample?

3- Is there a correlation between the symptoms of PTSD following childbirth and religiosity in the Saudi or British sample?

4- Is there a correlation between the symptoms of PTSD following childbirth and social support (significant other- family- friends) in the Saudi or British sample?

5- Is there a correlation between the symptoms of PTSD following childbirth and mental health (anxiety- depression) in the Saudi or British sample?

6- What is the best predictor of PTSD scores in each sample amongst assumptions, religiosity, social support, anxiety, and depression?

5.4 Method

5.4.1 Procedure

This study's procedure is part of the main study, an account of which can be found in chapter two.

5.4.2 Participants

See chapter two.

5.4.3 Measures

Participants completed the Post Traumatic Stress Diagnostic Scale (PDS: Foa, 1995), the World Assumption Scale (WAS: Janoff-Bulman, 1989), the Multidimensional Measure of Religious Involvement (MMRI: Levin et al., 1995), the Multidimensional Profile of Social Support (MSPSS: Zimet, Dahlem, Zimet, & Farley, 1988) as well as the Hospital Anxiety and Depression Scale (HADS: Zigmond and Snaith, 1983). Further descriptions can be found in the Methods section, Chapter 2, including the measures utilised for the study.

5.4.4 Statistical analysis

SPSS version 23 statistical software was used to analyse the data, whilst the Mann-Whitney test was deployed to examine group differences in the continuous variables. Also, Spearman's Correlations were run to investigate the relationships between women's assumptions (justice, benevolence of people, randomness, benevolence of the world, self-worth, luck, self-control and controllability) and PTSD symptoms following childbirth, PTSD following childbirth symptoms and religion (organised religiosity, non-organised religiosity and subjective religiosity), PTSD symptoms following childbirth and social support (family, friends, and significant other) as well as PTSD symptoms and mental health (anxiety and depression). These analyses were carried out for the whole sample overall and for the Saudi and British groups, separately. To reduce the risk of a type 1 error, the accepted level of significance was reduced to $p<.01$, instead of performing Bonferroni corrections, as it is too conservative in this instance (Bender & Lange, 1999). Finally, stepwise multiple regressions were chosen due to the presence of multiple independent variables. Owing to the exploratory nature of the analysis, all the predictors were allowed to be entered into the

model based on whether or not they contributed significantly to the explanation of variance. Stepwise regression is a modification of forward selection, such that after each step in which a variable is added, all variables in the model are checked to see whether their significance has been reduced below the specified tolerance level. If a non-significant variable is found, it is removed from the model. Accordingly, stepwise regressions were run to predict the PTSD scores from all of the following predictors: depression, anxiety, religion (organised religiosity, non-organised religiosity, and subjective religiosity), assumptions (justice, benevolence of people, randomness, benevolence of the world, self-worth, luck, self-control, and controllability), and social support (significant other, family and friends). These analyses were run for both the Saudi and British samples.

5.5 Results

5.5.1 Descriptive statistics

The demographic characteristics of the sample can be found in chapter two on page 45.

As presented in Table 5.1, the median of almost all of the world assumption subscales was higher in the Saudi sample than in the British one, which means that those in the former sample were more likely to assume that bad events are not distributed according to justice principles (justice), and events in the world cannot be controlled by people's behaviours (controllability). Saudi women were more likely to report the following assumptions about themselves: not being a worthy or virtuous person (self-worth); that they behave irresponsibly (self-control); that people are not benevolent; and that the impersonal world is not benevolent (Janoff-Bulman, 1989). Also, the Saudi sample reported significantly more religious involvement as well as depression and anxiety symptoms than the British one. In contrast, the British participants reported more social support than did the Saudi sample.

Table 5.1 shows the means and standard deviations of the participants' scores on the World Assumption Scale (WAS: Janoff-Bulman, 1989), the Multidimensional Measure of Religious Involvement (MMRI: Levin et al., 1995), the Multidimensional Profile of Social Support (MSPSS: Zimet, Dahlem, Zimet, & Farley, 1988) and the Hospital Anxiety and Depression Scale (HADS).

Table 5.1
Mann-Whitney to compare the Saudi and British samples in: WAS, MMRI, MSPSS, HADS

Variables	British				Saudi					
	N	Mdn	Mean	SD	N	Mdn	Mean	*SD*	*U*	*p*
(WAS) - Total			113.2	16.48			125.6	29.39		
World assumptions	109	12.00			401	16.00			13440	<. 0001
Benevolence of	109	14.00			401	16.00			16564	<. 0001
Randomness	109	17.00			401	16.00			21188	.624
Benevolence of the	109	18.00			398	16.00			17785	.004
Self-worth	109	12.00			397	14.00			16046	<. 0001
Luck	109	15.00			395	16.00			20837	.607
Self controllable	109	12.00			393	16.00			17806	<. 0001
Controllability	109	12.00			395	16.00			12927	<. 0001
(MMRI)- Total			8.64	8.31			17.89	6.44		
Organised religiosity	107	2.00			389	4.00			17902	.025
Non-organised	107	0.00			389	9.00			3196.	<. 0001
Subjective religiosity	107	2.00			378	5.00			11958	<. 0001
MSPSS- Total			68.30	16.82			51.82	16.73		
Significant Other	103	28.00			383	23.00			10654	<. 0001
Family	103	23.00			383	20.00			14018	<. 0001
Friend	103	24.00			383	19.00			12598	<. 0001
Anxiety	102	7.00	7.05	4.108	380	11.00	11.09	3.447	8355.	<. 0001
Depression	102	5.00	5.90	2.896	379	12.00	11.68	3.333	3938.	<. 0001

*Note. *N*=Sample size. Mdn=Median. *U*=Mann-Whitney. *p*=p-values. SD=Standard deviation *(WAS) World Assumption Scale; (MMRI) The Multidimensional Measure of Religious Involvement; (MSPSS) The Multidimensional Profile of Social Support; (HADS) The Hospital Anxiety and Depression Scale*

5.5.2 Women's assumptions and their relation with the symptoms of PTSD following childbirth

In the Saudi sample, higher PTSD scores were associated with lower assumptions that bad events cannot be controlled by people's behaviours (controllability), and luck is rare and exceptional (luck). In the British sample, higher PTSD scores were associated with a greater level of assumption that one is a worthy or virtuous person (self-worth) and with lower assumption levels that one is not lucky (luck), and beliefs that the world is not benevolent (benevolence of the world) (Janoff-Bulman,1989) (see Table 5.2).

Table 5.2
Spearman's correlations between PTSD scores and assumption subscales along with subgroups split by country

		Justice	Benevolence/people	Randomness	Benevolence/world	Self/worth	Luck	Self/controllable	Controllability
PTSD	Saudi	-.122*	-.056	-.101*	-.105*	-.058	-.194**	-.122*	-.133**
	British	-.119	-.099	.139	-.414**	.441**	-.368**	-.231*	.037

**Note* *p< .05 **p <.01 Whole N=532. Saudi N=408. British N=124. The accepted level of significance is p<.01

5.5.3 The correlation between PTSD following childbirth and religiosity in Saudi and British samples.

There were no significant relationships between PTSD following childbirth and religiosity in either sample (see Table 5.3).

Table 5.3
Spearman's correlations between PTSD following childbirth and religiosity in the Saudi and British samples.

		Organised Religiosity	Non-organised Religiosity	Subjective Religiosity	Religion
PTSD	Saudi	.022	-.097	.120*	.014
	British	.010	.050	.041	.032

**Note* *p< .05 **p<.01 Saudi N=408. British N=124. The accepted level of significance is p<.01

5.5.4 The correlation between PTSD following childbirth and social support (significant other, family, friends) for the Saudi and British samples

There were significant negative relationships between PTSD following childbirth and social support (significant other, family, friends) in the British sample. In the Saudi sample, this was the same, except that there was no significant relationship with social support from friends. Moreover, lower social support from almost all sources was significantly associated with greater PTSD scores in both cultures (see Table 5.4).

Table 5.4
Spearman's correlations between PTSD after childbirth and social support for the Saudi and British samples

		Significant other	Family	Friends	Social
PTSD	Saudi	-.228**	-.193**	-.131*	-
	British	-.387**	-.347**	-.284**	-

**Note* *p< .05 **p<.01 Saudi N=408. British N=124. The accepted level of significance is p<.01

5.5.5 The Correlation between PTSD after Childbirth and Mental Health (anxiety-depression) in the Saudi and British Samples

There were significant relationships between PTSD after childbirth and anxiety-depression in the British and Saudi samples. Higher PTSD scores were associated with greater anxiety and depression (see Table 5.5).

Table 5.5
Spearman's correlations between PTSD after childbirth and mental health (anxiety-depression) in the Saudi and British samples

		Anxiety	Depression
PTSD	Saudi	.383**	.195**
	British	.589**	.522**

*Note *p< .05 **p< .01 Saudi N=408. British N=124

5.5.6 The best predictor of PTSD scores in each sample, from assumptions, religion, social support, anxiety, and depression

A stepwise multiple regression was run to predict the PTSD scores from the entered variables: assumptions (justice, benevolence of people, randomness, benevolence of the world, self-worth, luck, self-controllable, controllability); religion (organised religiosity, non-organised religiosity, subjective religiosity), social support (significant other, family, friends) as well as anxiety and depression, for the Saudi sample.

Anxiety, the luck assumption and social support from significant other significantly predicted PTSD scores, $F(3, 368) = 27.940$ $p < .001$, adj. $R^2 = .186$. That is. with higher anxiety symptom, a lower luck assumption, and lower social support from a significant other scores predicting higher PTSD scores, approximately 19% of the variance was explained. All three variables added statistically significantly to the prediction, $p < .001$. Regression coefficients and standard errors can be found in Table 5.6 (below).

The same predictor assumptions (justice, benevolence of people, randomness, benevolence of the world, self-worth, luck, self-controllable, controllability), religion (organised religiosity, non-organised religiosity, subjective religiosity), social support (significant other, family, friends) as well as anxiety and depression were entered into the model for the British sample. It was elicited that anxiety symptoms, social support from a significant other, assumptions about self worth, the benevolence of the people, and depression, statistically significantly predicted PTSD scores, $F (5, 96) = 34.452$ $p < .001$, adj. $R^2 = .642$. Higher anxiety scores, lower social support from significant others, a good assumption about self, lower benevolence of other people and greater depression scores predicted higher PTSD scores, with approximately 64% of the variance being explained. All five variables added statistically significantly to the prediction, $p < .001$. Regression coefficients and standard errors can be found in Table 5.6.

Table5.6
Multiple regressions for the significant predictors of PTSD from assumptions, religion, social support, anxiety, and depression

	Variable	B	SE_B	ß	R^2	p
Saudi	(Constant)	49.029	3.420			
	Anxiety	1.258	.187	.325		<.001
	Luck	-.614	.143	-.202	.186	<.001
	Significant Other	-.296	.083	-.171		<.001
British	(Constant)	20.665	6.112			
	Anxiety	1.129	.236	.397		<.001
	Significant Other	-.575	.149	-.252	.642	<.001
	Self-worth	.843	.241	.242		<.001
	Benevolence of People	-1.027	.287	-.222		<.001
	Depression	.736	.317	.182		<.001

Note. B=unstandardised regression coefficient; SEB=standard error of the coefficient; ß=standardised coefficient; R^2 =the coefficient of determination

5.6 Discussion

The current study was aimed at examining the key vulnerabilities and predictors of PTSD symptoms from mothers' assumptions, religion, social support, anxiety and depression, following childbirth. Also, a comparison between West and non-West countries (Britain and Saudi Arabia) was made.

Overall, the results show that there is a correlation between PTSD symptoms and mothers' assumptions, social support as well as anxiety and depression in both focal cultures. The two samples have similarities, in that women in both who had high levels of social support had low scores for PTSD, those who had more symptoms of anxiety and depression exhibited more PTSD symptoms following childbirth and neither sample showed a clear strong correlation between religion such symptoms. However, there were some differences in the pattern of relationships between the two cultural groups: Saudi mothers who had high PTSD symptoms had negative assumptions towards controllability, which did not appear amongst the British women. Moreover, British women with higher PTSD symptoms had higher assumptions about self-worth (subscale), but this was not shown in the Saudi sample. In addition, regressions on the British sample data showed a large amount of PTSD variance explained but there was a relatively low level explained in the Saudi sample. This does raise the question of why the model predicted more PTSD for British women rather than for Saudi ones? While the demographic was the same for both Saudi and British women, this suggests that some factors were not present in the Saudi sample, one possibility being that the measures employed in this study have been shown in Western countries to be important in PTSD, whereas there may be many other factors of importance in the Saudi group that the researcher is unaware of as yet.

The finding that PTSD following childbirth was related to women's world assumptions is considered new, since the previous work on this factor and PTSD has not

involved exploring the period following childbirth. Through this research, it has been elicited that there is a negative correlation between a mother's assumptions and post-partum PTSD. Nevertheless, because this was not a prospective study, it was not established whether the negative assumptions weakened the mother's defence against PTSD or whether the PTSD symptoms affected her assumptions. In both cultures, women who had more PTSD symptoms following childbirth shared the view that the one is unlucky (luck).

This finding has been supported by several studies in different contexts, e.g. loss of a parent (Schwartzberg & Janoff-Bulman, 1991), general traumatic experiences (Magwaza, 1999), parents bereaved by accident (Matthews & Marwit, 2003), workplace traumatic exposure (Pyevich, Newman, & Daleiden, 2003), trauma survivors (Goldenberg & Matheson, 2005) and interpersonal violence (Lilly et al., 2011). However, other earlier research that involved examining victims suffering from different types of trauma has shown limited support for Janoff-Bulman's theory regarding the associated between PTSD and negative assumptions. Overcash et al. (1996) enrolled undergraduate students who had been exposed to different types of trauma in their lives and used the satisfaction with life scale (SWLS: Diener et al., 1985). They found that this trauma group had significantly higher scores on symptoms of psychological distress, but did not differ in the score of world assumptions. Similarly, Meanwhile, Franklin, Janoff-Bulman, & Roberts (1990) showed that there were no differences on 8 basic assumptions between college-aged children of parental divorce and students from in tact families. This suggests that the relation between PTSD following childbirth and women's world assumptions is not consistent.

Regarding British women, high assumptions about self-worth were associated with more acute PTSD symptoms. This finding is significantly different from results shown in earlier literature, which tended to conclude that low self worth is strongly tied with greater levels of PTSD symptoms throughout various categories of traumatic experiences, e.g.

Dekel, Mandl, and Solomon (2011). However, these studies were not about examining PTSD following childbirth (e.g. Dekel et al. studied former Israeli prisoners of the Yom Kippur War in a 30 year follow-up study; Jeavons and Godber (2005) studied rural road crash victims).

In contrast, self-worth was not found to have a correlation with PTSD in the Saudi sample. This is supported by studies, such as those of Dunne (1987), Janoff-Bulman (1989) and Solomon et al. (1997), who stated that self worth and benevolence of people as world assumption factors, were not different when comparing individuals who had been through a trauma and those who had not. This finding could be explained by: first, when examining childbirth as a phenomenon many women go through, there are certain expectations regarding their reactions afterwards, focusing on happiness and joy, despite all other potential traumatic events. Hence, it is possible that childbirth does not affect mothers' self-concept negatively, which may explain the inconsistent findings in the Saudi sample. Second, from a methodological perspective, the WAS: (Janoff-Bulman, 1989) scale assesses the assumptions that an individual has currently. The self-worth scale items focus on a fixed specific aspect of personality that cannot be changed easily (e.g. I have reason to be ashamed of my personal character; I am very satisfied with the kind of person I am; I have a low opinion of myself; I often think I am no good at all). Thus, the PTSD symptoms may be unable to affect the assumption from positive to negative views.

Moreover, in this study no significant relationship between religion and PTSD following childbirth in either sample was found, except for a small correlation regarding subjective religion in the Saudi sample. This suggests that Saudi women who have a greater level of PTSD symptoms following childbirth have more belief about the importance of religion in their lives, away from organised or unorganised religion. This finding is surprising, because it has been clearly documented in the literature that there is a significant

association between religious faith and PTSD symptoms (e.g. Astin et al., 1993; Calhoun et al., 2000; Davis et al., 1998; Drescher and Foy, 1995; Klingler, 1999; Phan and Kingree, 2001; Saunders, 1999). However, at the same time there have been other studies that have reported no change in religious beliefs after a traumatic event (Overcash et al., 1996; Chan & Rhodes, 2013; Wadsworth, Santiago, & Einhorn, 2009), which gives the impression that a traumatic event may not affect religiosity or conversely, the latter does not impact on PTSD. This finding can be interpreted by considering the religiosity measures. For this study's purpose, one religion measure was needed for both samples (Saudi/British) to allow comparison between samples and the MMRI scale was used, because it is commonly deployed to examine religiosity (e.g. Kaslow, et al., 2004; Mowbray et al., 2000). However, it was originally developed for African Americans residing in the US, so it does not describe accurately the Islamic religion, (e.g. basic daily and yearly practices that might better assess the level of Islamic religiosity involvement, including praying, fasting, and Zakat, i.e. giving money to poor people). This perspective is supported by the low Cronbach's alpha of the 'organised religiosity as a subscale of the MMRI for the Saudi sample (0.46), which could explain the lack of correlation in this sample.

Moreover, the study outcomes indicate that the high level of social support experienced by women following birth was correlated with low scores of PTSD symptoms in both samples (Saudi/British). This finding has been supported by many studies (Alcorn et al., 2010; Cigoli, Gilli & Saita, 2006; Keogh, Ayers, & Francis, 2002; Old et. al., 2006; Nicholls & Ayers, 2007; Soet et al., 2003; Verreault et al., 2012). Thus, it is clear that lack of social support from friends, family and/or significant others is one of the vulnerability factors for women following birth, which may help to prevent or foster the development of PTSD in both cultures. However, the concept of social support may differ across cultures, in terms of the values, beliefs and social structures that play a role in the development of

people's social skills as well as the way in which they handle life issues and manage stressful situations (Feng & Burleson, 2006).

In addition, there was a positive relationship between the occurrence of PTSD symptoms in women following childbirth and having anxiety and depression symptoms in the two cultures, which was expected and consistent with previous research (Czarnocka and Slade, 2000; Soet et al. 2003; Verreault et al., 2012; Alcorn et al., 2010; Kessler et al., 2003). It has been widely reported that depression and anxiety occur during the postpartum period due to the extensive responsibilities that are common in women of child-bearing age, in addition to the stressor of childbirth experience itself, which could cause PTSD symptoms or present other mental health problems (Maser & Cloninger, 1990; Sholomskas et al., 1993).

There were no clear differences between the Saudi and British samples in the correlation between PTSD and anxiety and depression. That could be interpreted by referring to the similar prevalence of depression that accounts for 5.5% to 5.9% of populations around the world in both high income and low-middle income cultures (Simon, Goldberg, Von Korff, Ustun, 2002; Kessler et al, 2010). Similarly, the worldwide prevalence of anxiety disorders is 7.3% (Baxter, Scott, Vos, & Whiteford, 2013). In addition, anxiety and social support from significant others were seen to be a strong predictor when it came to a greater likelihood of PTSD following childbirth in the two cultures.

The conclusions that can be drawn from this chapter is that negative assumptions towards the world and people, lack of support from significant others as well as high anxiety and depression level are vulnerability factors that are important in postpartum PTSD in both cultures. Because of the cross-sectional nature of the study, it is not clear whether these factors are risk factors for the development of PTSD or whether the development of PTSD symptoms following birth increases negative assumptions, reduces social support and increases anxiety and depression. Even though there were few differences between the

Western and non-Western countries in regards to PTSD symptoms correlation with these vulnerability factors, there were differences in the patterns between the two cultures. For example, Saudi women who had high PTSD symptoms had negative assumption towards controllability, which did not appear amongst British women, who also had higher assumptions about self-worth other than the Saudi women.

5.7 Strengths and limitations

This study is the first to explore the vulnerabilities and predictors of PTSD symptoms following childbirth (mother' assumptions, religion, social support, anxiety and depression) and to identify differences in the patterns of those factors' relationships with PTSD symptoms following childbirth between Britain and Saudi Arabia. Previously, researchers have not explored these relations in Saudi Arabia, in particular and in Arabic countries, in general. These findings have clinical implications for professionals caring for postnatal women, in terms of identifying those who are at risk of PTSD, i.e. women who lack social support and who have depression or anxiety symptoms. They can take preventative arrangements (e.g. involving in social support resources) to limit the occurrence of any mental health complications. However, there are a number of limitations regarding this study. First, even though the religion scales (MMRI: Levin et al., 1995) are the most widely used tool to assist religion involvement, it was not the most suitable tool to assess the Saudi religious involvement, which is based on personal practice and worship, rather than engaging in organised religious activities or non-organised ones, e.g. volunteer work at religious services or engaging in regular or irregular religious activities. In addition, the MMRI (Levin et al., 1995) produced a low reliability score (0.71) for the Saudi sample,,especially, for the 'organised religiosity' subscale (0.46). Thus, it is suggested that for future studies alternative measures of religiosity should be used, which better suit both cultures. Furthermore, this

study involved investigating factors associated with PTSD symptoms for up to 12 months following birth, but not past this. So, there remains a need for prospective longitudinal research studies that assess risk factors before birth to determine, which might be actual risk factors for the development of PTSD following traumatic childbirth that may contribute to the disorder over time.

CHAPTER SIX

THE ROLE OF ADULT ATTACHMENT STYLE IN THE DEVELOPMENT OF PTSD FOLLOWING CHILDBIRTH AND ITS RELATIONSHIP WITH BONDING

6.1 Abstract

In Chapter 4, it was suggested that 14.7% of women develop post-traumatic stress disorder (PTSD) following childbirth. In this chapter, the correlations between adult attachment styles, PTSD following childbirth, and bonding, in two cultures, namely, Saudi and British, are examined. A total of 532 (408 Saudi and 124 British) new mothers were recruited online and from clinics. These mothers completed the Revised Adult Attachment Scale (RAAS) and Maternal Postnatal Attachment Scale (MPAS) at 1–12 months post-partum (mean = 9.5 months). Spearman's Correlations reveal that insecure attachment (high attachment anxiety, low closeness and low dependence scores) is related to PTSD symptoms following childbirth. Women who experience these PTSD symptoms have a poorer quality of bonding with their babies. In terms of mother-infant bonding, lower absence of hostility and poorer quality of attachment, are associated with experiencing PTSD symptoms following birth. These results emerged in both the Saudi and British samples. These findings have clinical implications that support the need for improved prenatal screening for attachment style in order to tailor the birth experience accordingly and thus, promote mother-infant bonding.

6.2 Introduction

One of the difficulties that mothers may face is Post Traumatic Stress Disorder (PTSD) following childbirth. Research has revealed that 1% to 7% of mothers experience it following childbirth and a greater proportion of them report having symptoms of PTSD, but fail to meet all the PTSD criteria (Alcorn, 2010). In an earlier chapter in this thesis, it was suggested that up to 14.7% of women exhibit PTSD following childbirth in Saudi and UK samples. One of the frameworks that can facilitate understanding of traumatic response is attachment theory. It has been claimed that a secure attachment style has a protective impact, while insecure attachment styles are possible vulnerabilities for subsequent mental health difficulties (Bartholomew, Kwong & Hart, 2001; Bowlby, 1973; Sroufe, 2005). Evidence suggests that individual differences in attachment style might explain why some individuals experience traumatic reactions after facing a traumatic event (Kanninen, Punamaki, & Qouta, 2003).

As previously explained, an individual may develop insecure attachment, which can be conceptualised in terms of two major dimensions: anxiety and avoidance. Attachment-related anxiety pertains to an individual's degree of worry that attachment figures will not be available or will not be supportive in times of need. Attachment-related avoidance refers to the extent to which an individual may distrust a partner's goodwill for support, thus resulting in subsequent withdrawal and maintenance of emotional distance and behavioural independence (Gormley & McNiel, 2010). The Revised Adult Attachment Scale (RAAS; Collins, 1996) is one of the attachment scales that has been used widely to assess attachment style. It has three dimensions. The closeness scale quantifies the degree to which an individual is at ease with being close and caring towards another individual, while the dependence scale quantifies the extent to which someone thinks that they can rely on others for support; both scales reflect attachment-related avoidance. Additionally, the anxiety scale

quantifies the degree to which an individual is concerned about not having support or relationships (Collins &Read, 1990). Thus, high scores for attachment anxiety, low scores for closeness and dependence would be reflective of insecure attachment.

One of the most significant phases within a woman's life is childbirth, but this can also be a distressing time due to the various factors set out within the first chapter of this thesis. Armour, Elklit, and Shevlin (2011) explained how attachment style has been correlated with the perception of traumatic events within different groups. Insecure attachment may be considered a risk factor for later traumatic problems. O'Connor and Elklit (2008) revealed that secure attachment style in a young adult population correlated negatively with PTSD symptoms after different traumatic events. In a sample of 544 Belgian security officers employed by the Red Cross, Declercq and Palmans (2006) found that employees with a secure attachment style were not as vulnerable to developing PTSD after facing a traumatic event as those who had an insecure attachment style.

According to Mikuliner et al. (2006), the attachment system's function within the traumatic and post-traumatic processes can be explained through a number of mechanisms. The distressing situation triggers the operation of the attachment system and throughout the traumatic event, attachment figures can assist the victims in regulating their emotions that they need to stop the triggering of PTSD symptoms. The individual's inability to address the traumatic situation causes feelings of helplessness, insecurity, loneliness, and abandonment as trauma can shatter the feeling of individual security and his/her trust in attachment figures. Additionally, anxiously attached individuals have a greater probability of experiencing post-traumatic intrusion symptoms, whereas avoidantly attached individuals have a greater likelihood of experiencing post-traumatic avoidance symptoms. Also, security providing attachment figures that offer safeguarding throughout the period following a traumatic event

can assist individuals in addressing emotional issues so as to be able to regain their wellbeing (Mikulincer et al., 2006).

Attachment style is important both in adjustment following a traumatic birthing experience and for its impact on the mother-infant bond. There is increasing evidence of an association between the mother's childhood experience and her baby bonding (Grossmann, Fremmer-Bombik, Rudolph, & Grossmann, 1988). In Siddiqui et al.'s (2000) study about prenatal attachment it was reported that expectant mothers who had an emotionally available mother throughout their own childhood feel tenderness toward their unborn baby. Moreover, parents who were classified as having a secure-autonomous attachment pattern were more likely to have children who developed a secure attachment pattern (Main et al., 1985; Main and Hesse, 1990; Steele, Steele, & Fonagy,1996; Ward & Carlson, 1995). Conversely, parents who did not receive emotional support and who were detached or rejected by their parents were more likely to have children with insecure attachment styles.

Following the birth, the postnatal phase plays an important role in developing a good relationship between the mother and her baby (Bennington, 2012). Bonding refers to the mother's emotional availability and love towards the child, which is supported by behavioural and emotional participation that maintains the required care and closeness for the baby's wellbeing, thus ensures that it thrives (Bowlby, 1958). According to the WHO (2013), mental health issues, such as PTSD during this period, can have a substantial effect on maternal-infant bonding, which as a result, can have a long term impact on the child's progress (WHO, 2013). Brockington (2001) stated that a positive bond between a mother and child creates the foundation for a secure attachment; however, some mothers are unable to create this relationship with their child. Mothers' inability to form this relationship is known as a bonding disorder, which can lead to the abandonment or injury to the baby in extreme situations. Bennington (2012) explained that one of the potential causes of a

bonding disorder is women's emotions and perspectives on the birthing situation. A ‘good birthing experience’, according to Takehara, Noguchi, & Shimane, (2009), can been correlated with good bonding (positive feelings concerning motherhood as well as low parenting stress and anxiety) and decreased parental tension and anxiety. A traumatic birth is one of the negative birthing experiences that can affect mother-infant bonding (Elmir, Schmied, Wilkes, & Jackson, 2010; McDonald et al., 2011).

There is notable evidence that suggests that culture plays a role in the development of relationships, whereby it determines the norms, customs, assumptions and regulations that control the connections between individuals, including their attachment style (Keller, 2007). Ainsworth (1967) conducted a study in Uganda and discovered how in addition to genetic elements, culture impacts on the attachment system. As a result, it is normal that culture would produce variations in distribution of the attachment styles (Leyendecker, Lamb, Scholmerich, and Fricke 1997).

Indeed, whilst in the infant attachment literature secure attachment style appears to be the norm across many cultures (see van IJzendoorn & Sagi-Schwartz, 2008), cultural differences are present in the distribution of insecure attachment styles. Regarding which, Takahashi (1986) showed that in a sample of Japanese infant-mother dyads, infants had a higher rate of anxious attachment and lower rate of avoidant attachments in contrast to the international norms. Similarly, in the adult attachment literature, secure attachment also appears to be the norm across cultures. For instance, a meta-analysis of adult AAI classifications across different cultures reported the following distribution for non-clinical mothers: 24% dismissing; 58% autonomous; and 18% preoccupied (Van IJzendoorn, Bakermans-Kranenburg 1996). However, rates of attachment styles occasionally differ within some cultures. Behren, Hesse and Main's (2007) study revealed that Japanese mothers had a lower rate of dismissing and preoccupied attachment patterns compared to the

universal distribution. Attachment style differs between cultures and within the circumstances surrounding the individual (Fiori, Consedine, & Magai, 2009; Wei, Russell, Mallinckrodt, & Zakalik, 2004).

To summarise, research supports the link between adult attachment style and psychopathology (e.g. Dutra and Lyons-Ruth, 2005; Sroufe et al., 2005a), specifically, between attachment and PTSD (Iles et al., 2011; Ayers et al., 2014). Moreover, scholars have highlighted the impact of postpartum PTSD on the mother-baby bond (Davis et al., 2008; Feeley et al., 2011; Ayers et al., 2006; Parfitt & Ayers, 2009). Nonetheless, the correlation between these three factors, i.e. mother's attachment style, a traumatic birth, and mother-infant bonding, have not been examined as yet. The link between mother's attachment style and infant bonding has been examined (Grossmann et al.,1988; Siddiqui at al., 2000), but not with the effect of having symptoms of PTSD following childbirth. Additionally, the results from different studies regarding which attachment style is linked with PTSD, are varied (Iles et al., 2011; Mikulincer & Shaver, 2001).

Hence, for the current study, the aim was to investigate the association between three adult attachment dimensions (closeness, dependence, and attachment anxiety) and PTSD following childbirth within two cultures: British and Saudi.

6.3 Research Questions

1- Is there a relationship between a women's attachment style (closeness, dependence, and attachment anxiety) and her experience of PTSD symptoms following childbirth in Saudi Arabia and the UK?

2- Does the experience of PTSD symptoms relate to mother-infant bonding (Absence of hostility, Quality of attachment, and Pleasure in interaction) in Saudi Arabia and the UK?

3- Is there a correlation between a mother's attachment style and her experience of mother-infant bonding in Saudi Arabia and the UK?

6.4 Method

6.4.1 Procedure

This study's procedure is part of the main study and can be found in chapter two.

6.4.2 Participants

See Chapter 2.

6.4.3 Measures

Participants completed the Posttraumatic Stress Diagnostic Scale (PDS: Foa, 1995), the Revised Adult Attachment Scale (RAAS: Collins, 1996) and the Maternal Postnatal Attachment Scale (MPAS: Condon & Corkindale, 1998). Further descriptions can be found in the Methods section, Chapter 2 along with the measures deployed for each scale.

6.4.4 Statistical analysis

SPSS version 23 statistical software was used to analyse the data. Initially, Spearman's correlation analyses were run looking at the relationship between women's attachment style (closeness, dependence, and attachment anxiety) and PTSD symptoms following childbirth; PTSD symptoms and mother-infant bonding (absence of hostility, quality of attachment, and pleasure in interaction); and, a mother's attachment style and her experience of child bonding. These analyses were carried out for Saudi and British groups separately. Also, to reduce the risk of a type 1 error, the accepted level of significance was reduced to $p<.01$ instead of performing Bonferroni corrections as it is too conservative in this instance.

6.5 Results

6.5.1 Descriptive statistics

The demographic characteristics of the sample can be found in Chapter 2 (see p. 47). There were significant differences in the mother-baby bonding scores and the closeness attachment dimension between the Saudi and British samples. British mothers showed significantly higher scores on all the mother-baby bond scales than the Saudi one. They also had significantly higher closeness scores, but there were no significant differences between the two groups regarding attachment anxiety and dependence (see Table 6.1). Table 6.2 shows the means and standard deviations of the participants' scores on the Posttraumatic Stress Diagnostic Scale (PDS: Foa, 1995), the Revised Adult Attachment Scale (RAAS: Collins, 1996) and the Maternal Postnatal Attachment Scale (MPAS: Condon & Corkindale, 1998).

Table 6.1
Mann-Whitney to compare the Saudi and British samples for PDS, RAAS and MPAS

Variables	Saudi		British			
	N	Mdn	N	Mdn	*U*	*p*
(RAAS) - Attachment Anxiety	408	2.50	124	2.33	22656.5	.078
(RAAS) - Closeness	408	3.00	124	3.75	15634.5	<.0001
(RAAS) - Dependence	408	3.00	124	3.17	22778.5	.092
(MPAS) - Absence of hostility	343	14.00	100	15.00	12965.5	<.0001
(MPAS) - Quality of attachment	344	29.00	100	34.00	4455.5	<.0001
(MPAS) - Pleasure in interaction	341	13.00	100	15.00	9482.5	<.0001

Note. *N*=Sample size. Mdn=Median. *U*=Mann-Whitney. *p*=p-values. (PDS) The Posttraumatic Stress Diagnostic Scale; (RAAS) The Revised Adult Attachment Scale; (MPAS) The Maternal Postnatal Attachment Scale

Table 6.2
Mean and SD of the scale scores (PDS, RAAS, MPAS)

Variables	Saudi			British		
	N	Mean	SD	N	Mean	SD
PDS	408	19.74	13.114	124	15.59	11.512
(RAAS) - Attachment Anxiety	408	2.54	.938	124	2.39	1.134
(RAAS) - Closeness	408	3.13	.741	124	3.67	.809
(RAAS) - Dependence	408	3.03	.619	124	3.21	.898
MPAS	344	55.99	6.114	100	63.30	6.716

Note. N=Sample size. SD=Standard deviation. (PDS) The Posttraumatic Stress Diagnostic Scale; (MPAS) The Maternal Postnatal Attachment Scale; (RAAS) The Revised Adult Attachment Scale

6.5.2 The relationship between women's attachment style and their experience of PTSD symptoms following childbirth.

Across the overall sample and also when split in Saudi and British groups, higher scores on attachment anxiety were associated with higher PTSD scores and women who worried that there would be no attachment figure available or supportive in times of need were more likely to have PTSD symptoms. Similarly, in both samples, low dependence (i.e. feeling unable to depend on others for support) was associated with higher PTSD scores. Lower scores on closeness, which indicates discomfort with closeness and intimacy, were associated with higher PTSD in the just the overall and British sample. In general, insecure attachment (high attachment anxiety, low closeness and low dependence scores) emerged as being related to PTSD symptoms following childbirth (see Table 6.3).

Table 6.3
Spearman's Correlations between PTSD scores and the attachment subscales in the overall sample, and subgroups split by country

		Attachment anxiety	Closeness	Dependence
PTSD	Overall	.191**	-.125**	-.159**
	Saudi	.117**	-.078	-.129**
	ritish	.383**	-.279**	-.247**

**Note* **p<.01. Overall N=532. Saudi N=408. British N=124. The accepted level of significance is p<.01

6.5.3 The experience of PTSD symptoms related to mother-infant bonding.

Across the overall sample and also when split in Saudi and British groups, higher scores on PTSD were associated with lower scores on absence of hostility and quality of attachment. This means that in both samples, women who experienced more symptoms of PTSD following childbirth had poorer quality of bonding with their babies. Moreover, they experienced more feelings of anger and hostility towards their babies as well as being more likely to feel the baby was being deliberately difficult, thus experiencing him/her as a burden (absence of hostility). Also, British women with higher PTSD scores had greater lack of confidence and feelings of incompetence at being the mother of the baby (quality of attachment), but this is did not apply to the Saudi sample. Also, the results indicate that experience of symptoms of PTSD following childbirth is not significantly correlated with pleasure in interaction in either the Saudi or British sample (see Table 6.4).

Table 6.4
Spearman's correlations between PTSD scores and the bonding subscales in the overall sample, and subgroups split by country

		Absence of hostility	Quality of attachment	Pleasure in interaction
PTSD	Overall	-.132**	-.106*	-.052
	Saudi	-.096**	-.072	-.024
	British	-.217**	-.282**	-.061

**Note* **p<.01, *p<.05, Overall N=444. Saudi N=344. British N=100. The accepted level of significance is p<.01

6.5.4 Correlations between a mother's attachment style and her experience of mother-child bonding.

There were significant relationships between the mother's attachment style and her experience of mother-child bonding. For instance, higher scores on attachment anxiety were associated with lower scores on all the mother–infant bonding subscales in the overall sample (see Table 6.5). There were also significant relationships between the mother's attachment style (attachment anxiety and closeness) and mother-infant bonding (quality of attachment and pleasure in interaction) in the Saudi sample. Specifically, higher scores on attachment anxiety were associated with lower scores on quality of attachment and pleasure in interaction, whilst higher scores on closeness were associated with higher scores for these two factors. However, the absence of hostility in mother-child bonding was not correlated with any of the maternal attachment dimensions. Similarly, dependence was not correlated with any of the mother-child bonding scales in the Saudi sample (see Table 6.5).

There were also significant relationships between mothers' attachment style and mother-infant bonding (absence of hostility and quality of attachment) in the British sample. Regarding which, higher scores on attachment anxiety were associated with lower scores on absence of hostility and quality of attachment. However, the pleasure in interaction subscale

was not correlated for any of the mother attachment dimensions in this sample (see Table 6.5).

Table 6.5
Spearman's correlation coefficients between the mother's attachment style and he experience of mother-child bonding in the overall sample, and subgroups split by country

Scales	Sample	Absence of hostility	Quality of attachment	Pleasure in interaction
Attachment anxiety	Overall	-.178**	-.281**	-.184**
Closeness		.132**	.395**	.258**
Dependence		.159**	.151**	.106*
Attachment anxiety	Saudi	-.080	-.230**	-.141**
Closeness		.037	.262**	.151**
Dependence		.063	.066	.058
Attachment anxiety	British	-.443**	-.360**	-.129
Closeness		.208*	.222*	.089
Dependence		.393**	.255*	.072

**Note* **p<.01, *p<.05, Overall N=444. Saudi N=344. British N=100. The accepted lev of significance is p<.01

Across the overall sample and also when split into Saudi and British groups, higher scores on all attachment dimensions were associated with lower bonding subscales: Women who worried that attachment figures would not be available or supportive in times of need (attachment anxiety) were more likely to lack confidence and perceive incompetence at being the mother of the baby (quality of attachment) as well as being more likely to feel as if the baby was being deliberately difficult (absence of hostility). Women who were less dependent emotionally and behaviourally on others (dependence), were more likely to be dissatisfied with the interaction with their baby and to have more feelings of hostility towards him/her, thus being unhappy spending time with them (absence of hostility).

6.6 Discussion

The current study was aimed at examining the relationships between women's attachment style (closeness, dependence, and attachment anxiety), PTSD following childbirth and mother–infant bonding (absence of hostility, quality of attachment, and pleasure in interaction). Overall, the results show that there is a correlation between attachment style, mother-baby bonding and PTSD following childbirth in the two focal cultures (SA/UK). Women who reported more insecure attachment in their relationships (high attachment anxiety lower closeness and dependence), were more likely to report PTSD symptoms following childbirth. Also, those who experienced more symptoms of PTSD following childbirth had poorer quality of bonding with their babies.

This study's results support previous studies that point to a relationship between attachment styles and PTSD in different types of traumas, such as war (Besser, & Neria, 2010; Mikulincer et al., 1993); polio, traffic and accident victims (Armour et al., 2011); and political prisoners (Kanninen et al., 2003); and Ayers et al. (2014) who provides evidence for the correlation between women's attachment style and PTSD following birth. Ayers et al.'s (2014) study reported how avoidant attachment was significantly correlated with PTSD following childbirth, which is consistent with this study's finding that PTSD symptoms are negatively correlated with closeness and dependence. These are two subscales that represent avoidant attachment (Collins, 2008), being also identified by the Adult Attachment Questionnaire (AAQ; Simpson et al., 1996), as utilised by Ayres et al. (2014). In contrast, Ayers et al. (2014) found that anxious attachment was not significantly associated with PTSD following childbirth, which is contrary to this study's result. This may be because Ayers et al. employed the AAQ (Simpson et al., 1996) to measure romantic attachment among couples who were cohabiting, which is different to that used for this study (RAAS: Collins, 1996), which assesses adult attachment to others in general.

When the data were separated into countries, Saudi and British, the results indicated that within the former sample, there was no correlation between closeness and PTSD following childbirth, whereas one was found within the British and overall sample. This result is not supported by previous studies that confirm the correlation between these two variables, such as Ayers at al. (2014) and Armour et al. (2011), who aimed to classify different attachment styles based on the dimensions of closeness/dependence and anxiety by using the RAAS (Collins, 1996) and employed a quantitative approach (LPA) on whiplash trauma victims. It was found that the secure attachment group had significantly lower scores for PTSD, depression, and anxiety measures compared to the fearful group (an attachment style reflected by high scores on attachment anxiety dimension and avoidance, i.e. low scores on the closeness and dependency dimensions in the RAAS). who have higher mean scores on PTSD compared to other groups.

These results can be interpreted by considering the cultural aspect of individualistic versus collectivistic. Within individualistic cultural contexts, people act independently and make their own choices to the extent that they interact with the rest of the group as an individual (Hofstede, 1984; Markus & Kitayama, 1991). In collectivistic cultures, individuals tend to have more dependent identities or in other words, they highlight their relationships and associations with others and have greater socially submerged perspectives of themselves (Markus & Kitayama, 1991). Oyserman, Coon, and Kemmelmeier (2002) clarified that the United Kingdom is an individualistic society that places comparatively more attention on personal accomplishments and puts less emphasis on sustaining positive connections with others. In contrast, Saudi society is a collectivistic society (Hofstede, 1984), which considers the group as the primary entity and partly dismisses individualism. As such, Saudi women will have a higher regard for themselves, if they are able to generate good relationships with others, although this may be an unconscious thought. From this, it

follows that Saudi women will aim to be close to others despite any suffering or feelings. This reasoning could explain the lack of correlation between the closeness attachment dimension and PTSD following childbirth.

Furthermore, the results have revealed that higher scores of PTSD are associated with lower bonding scores. This is in line with previous studies that found that the mother–baby bond was seriously affected by a traumatic birth, especially in regards to symptoms of PTSD, such as increased arousal, which could lead to a woman becoming more irritable, critical, and anxious with her child and/or reporting initial feelings of rejection towards the baby (Ballard et al., 1995; Reynolds, 1997; Ayers at el., 2006; Parfitt & Ayers., 2009; Figueiredo et l., 2009; Forcade-Guex et al., 2011; and Muzik at el., 2013). Moreover, the pleasure in interactions sub-scale was not related to PTSD symptoms in any subgroup. This refers to showing pleasure from interacting with the baby and liking spending time with him/her. This result is contrary to expectations. In order to ensure that this study's data analysis is correct, the mean scores of the MPAS subscales (Condon & Corkindale, 1998) were compared to those reported in Condon and Corkindale's (1998) study, which involved using the same three MPAS subscales, No notable difference was identified between these means, thus suggesting that the study populations were representative. It is considered that the absence of correlation between pleasure in interaction and PTSD may be a result of the inevitable interaction between mother and her baby, particularly in the first 12 months, regardless of the mental health of the mother. As such, no relationship between pleasure in interaction and PTSD symptoms was identified. Also, the study considered how social desirability could influence new mothers as the MPAS "pleasure in interaction" subscale contains questions requesting the mother to report her feelings toward her baby in the presence of others like: "When I am with the baby and other people are present I feel proud of the baby" and "I find myself talking to people (other than my partner) about the baby".

From this, it is suggested that there could be an element of misrepresentation by the mothers with regards to their interactions with their babies as a result of social desirability.

Additionally, in the Saudi sample, quality of attachment scores did not correlate with the PTSD scores. This may be explained, in part, from a cultural perspective. Women, especially new mothers, following birth, usually immediately move in with their parents in their extended family homes. They get support, care, and encouragement about the new baby from friends and visitors. This period lasts for forty days and is called Al nofas. During this stage, the overall family shares the responsibilities for the baby. . In the MPAS, quality of attachment is defined as a sense of satisfaction at being the mother of the baby and the mother's opinion of her own patience with the baby. As a result of Al nofas, there will not be a constant interaction between the mother and child, which could well explain the uncorrelated relations between these two variables. This would appear to be supported by the low Cronbach's alpha of the 'quality of attachment as a subscale of the MPAS' for the Saudi sample (0.46).

Furthermore, it has been argued that the mother's attachment style significantly affects the creation of the mother-baby bond and her adjustment to motherhood (Ballou,1978; Weitzman,1984; Main & Hess, 1990). The current study's finding about mother attachment dimensions and their correlation with mother-infant bonding supports this view. Women who are concerned about the emotional availability of others, lack of support during crisis periods (attachment anxiety) or uncomfortable with closeness and intimacy (closeness) have a greater chance of lacking confidence within the motherhood period (quality of attachment). Moreover, those who feel that they cannot depend on others either emotionally or physically (dependence), have a greater chance of being unhappier during their interactions with their child (pleasure in interactions), and feeling hostile towards him/her, with the perception that the baby is being challenging (absence of hostility).

However, when the sample was divided into Saudi and British groups, the Saudi sample did not show a correlation between dependence and any of the bonding sub-scales, which might be expected based on the weak correlation in the overall sample. These outcomes can be interpreted in terms of culture. Collins, Cooper, Albino and Allard (2002) identified four attachment styles from two dimensions derived from self-reported data, these dimensions being anxiety and the combined measures of dependency and closeness. These results support the model of self and others derived by Bartholomew (1990) and Griffin and Bartholomew (1994), which is based on the dimensions of avoidance and dependency. Dependence might not indicate secure attachments within non-Western culture as it does in Western culture (van IJzendoorn & Kroonenberg, 1988). This idea is supported by a Japanese study and an African, showing that avoidant attachment styles did not exist amongst their participants. They attributed this to the commonly engaged in parenting behaviours, such as breastfeeding and the degree of physical contact, which they regarded as being adequate for stopping the creation of avoidant actions (Takahashi, 1986; True, Pisani, and Oumar, 2001).

Another study confirmed these results by eliciting that parenting traditions in Japan encourage a strong bond between infant and mother (dependence), which may cause extreme distress in case of the absence of the latter (Takahashi 1986). Additionally, the relationships within Japanese culture include an insecure-ambivalent style that children acquire from their parents. Within this circumstance, security is associated with dependence, which is different from the non-Western styles of attachment that connect security with independence. Nonetheless, these types of attachment both make individuals able to learn the traits required to thrive within different social situations (Rothbaum, Kakinuma, Nagaoka, & Azuma, 2007). This might be one of the explanations for the absence of associations between dependence and the bonding sub-scales within this study.

In the British sample, the bonding scale pleasure in interactions did not correlate with any of the attachment dimensions. These results are contrary to those found for the Saudi sample (N=341) and the overall one (N=441), despite these correlations being significant but weak ($r < 0.25$). It is considered that this lack of correlation could be due to the small sample size of the British sample (N=100).

Overall, this study has provided some interesting findings. New mothers who have high attachment anxiety, low closeness and low dependence are more likely to have PTSD symptoms following childbirth than those not experiencing these conditions. Also, women who have experienced more symptoms of PTSD following childbirth have poorer quality of bonding with their babies. Moreover, it has emerged that the mother's insecure attachment style interferes with the mother-baby bond. Whilst these results appeared in the two different cultures, Saudi Arabian and British, there were differences in their pattern within each. This indicates the strength of influence that culture has on attachment style and mother-infant bonding, thus highlighting the need for further research.

Whilst the results of this study are correlation based and thus, cannot assess causation, they are consistent with the following proposed model for the interaction between attachment, bonding, and PTSD. It is plausible that women with high attachment anxiety, low closeness and low dependence perceive themselves and others in relationships negatively, which may lead to poorer perceptions of their parenthood and bonding with their child. When women also experience PTSD symptoms in this context, the child may become a trigger for flashbacks, as he/she is a symbol of the pain and fear of the traumatic birth itself. This also likely to interact with attachment dimensions to affect the bonding style of the mother further and thus, avoiding the trigger (avoiding the child) is likely to result in a more distant style of parenting. That is, mothers may separate themselves from their children in order to avoid being reminded of the birth experience, in addition to the predispositions for

more avoidant parenting which may stem from her own attachment, thus creating a cumulative risk for poorer bonding outcomes.

It is considered that this study provides a good basis for understanding the way in which post-partum PTSD and attachment style are correlated, particularly in Saudi Arabia, as well as presenting a platform for cross-cultural understanding. These findings also have clinical implications that support the need for improved pre-natal screening for attachment style in order to tailor the birth experience accordingly and thus, promote mother-infant bonding.

6.7 Strengths and limitations

Previous studies have not explored the correlation between attachment style, PTSD following childbirth and the mother-baby bond. Hence, this is the first to do so along with regards to examining these relationships in both Saudi and British cultures. However, there are a number of limitations. Nearly 20% of the sample failed to respond to the MPAS, which was possibly due to the measure being presented at the end of the survey when the respondents' tolerance and interest levels had waned. This lack of response may have had an overall impact on the bonding responses. Furthermore, the study was dependent on a self–report evaluation of a mother's attachment dimensions and her bonding with her infant, which could have led to the results being influenced by socially desirable responses. The women were requested to explain their emotions, connections, self-perception, and relationship with their child as well as the occurrence of any social influence could have decreased the distress that might have occurred throughout the post-natal phase. In addition, future studies might take into account assessing a woman's romantic attachment or

attachment with a partner, which might have an impact on the development of PTSD following childbirth.

CHAPTER SEVEN

A LONGITUDINAL STUDY OF POST –TRAUMATIC STRESS SYMPTOMS WITHIN TWO YEARS FOLLOWING CHILDBIRTH

7.1 Abstract

Post-traumatic stress disorder (PTSD) following childbirth was assessed for up to two years postpartum. This cross cultural study was aimed at identifying the changing of symptoms of PTSD, depression, anxiety, as well as social support throughout the post-childbirth period at up to twelve months (T1) and up to twenty-four months (T2) in Saudi Arabia and the United Kingdom. 55 (28 Saudi and 27 British) mothers participated in this study, who were recruited from the main original sample. The participants completed the Post Traumatic Stress Diagnostic Scale (PDS) the Multidimensional Profile of Social Support (MSPSS) and the Hospital Anxiety and Depression Scale (HADS) when they were between 12 and 24 months post-partum. The results revealed that there were fluctuations in reaching PTSD following childbirth criteria for these women, but relative stability of PTSD symptoms over this period. Within the first year following childbirth, women typically experienced greater levels of anxiety and received more social support in contrast to the second year following childbirth. Additionally, women with PTSD symptoms at T1 were more likely to develop depression later at T2. Saudi women were likely to be more anxious and depressed as well as experiencing more PTSD symptoms two years after birth than British women. British women reported receiving more social support throughout the two-year period following childbirth than Saudi women. The findings of this study will aid in the development of a treatment strategy for new mothers who experience poor mental health following childbirth.

7.2 Introduction

Childbirth is an important risk factor in the development of mental health issues (Apter, Devouche, & Gratier, 2011). Depression, anxiety and PTSD are the most frequently occurring mental health problems encountered following childbirth; between 6.5% and 12.8% of women experience symptoms of depression (Gavin et al., 2005), while 13% to 16.3% encounter symptoms of anxiety after childbirth (Wenzel, Haugen, Jackson, & Brendle, 2005) and PTSD following childbirth affects 1% to 14.7% (Alcorn, 2010; Chapter 4, this thesis).

Many studies have investigated changes in symptoms during the perinatal period (Onoye et al., 2013), however, few have examined the longitudinal changes in mental health issues in the twenty-four months following childbirth (Glynn et al., 2008; Ross and McLean, 2006; van Bussel, Spitz, & Demyttenaere, 2009). Research on the continuing development of PTSD following different traumatic situations has produced inconsistent outcomes. For example, a study about PTSD symptoms in cancer patients discovered that these symptoms typically did not decrease within the following year (Andrykowski, Cordova, McGrath, Sloan, Kenady, 2000). Another study on fire fighters that had experienced significant fire-related incidents discovered that PTSD symptoms fluctuated within a two and a half year period (McFarlane, Papay, 1992). The most severe symptoms of PTSD, according to McFarlane (2000), could remain unchanged, while milder ones would often be reduced gradually.

A similar pattern has been identified in PTSD following childbirth. That is, some studies have shown PTSD symptoms to reduce between 48 hours and nine months postpartum (Ayers & Pickering, 2001; Denis et al., 2011), with others indicating the converse (Alcorn, 2010; Zaers et al., 2008). Alcorn's study of women in Australia revealed that 3.6% of females fulfilled the PTSD criteria four to six weeks post-partum, while 6.3%

of females fulfilled the PTSD criteria at 3 months and 5.8% at 8 months. Zaers et al. (2008) demonstrated that for women in Germany, PTSD symptoms decreased by six months after childbirth, but a few females that met the PTSD criteria were likely to continue to have these symptoms for six months (Zaers et al., 2008). Hence, it would appear reasonable to expect to see a general reduction in PTSD symptoms across time in the years following childbirth, but those women who reach criteria for PTSD may not improve, particularly if they have not sought or received treatment for their mental health.

Siedlecki, Salthouse, Oishi, and Jeswani (2014) suggested that positive social support is strongly linked with heightened life satisfaction and an enhanced emotional impact throughout the individual's life. In order to adjust to the new demands of motherhood effectively, which include infant care and the development of work and child-care balance, new mothers have reported an increased need for social support (Negron et al., 2013). Maternal mental wellbeing and recovery after childbirth may be dependent on adequate social support, which could also lead to a reduction in maternal and infant distress (Negron et al., 2013; Stapleton et al., 2012).

The co-occurrence of depression and anxiety (Brown et al., 2001; Maser & Cloninger, 1990) suggests that women suffering from depressive symptoms following childbirth also being likely to experience clinically significant symptoms of anxiety. It is unclear whether low levels of social support directly contribute to an increased risk of symptoms of anxiety or depression, or whether these effects are caused by a number of processes. Ponomartchouk and Bouchard (2015) found that symptoms of depression and anxiety were reduced with a sufficient level of social support. In another study, it was discovered that increased levels of social support directly reduce depressive symptoms and also increase mothers' perceived competence, which further reduces depressive symptoms (Ponomartchouk, & Bouchard 2015).

To summarise, limited studies have assessed changes in PTSD symptoms during the twenty-four month period following childbirth. Furthermore, there are no studies that have examined this in the Saudi Arabian context. Hence, study presented in this chapter is aimed at filling the gap by investigating the longitudinal changes in mental health symptoms of PTSD, depression, and anxiety, and social support following childbirth.

This study aimed to explore the changes in PTSD scores, social support, anxiety and depression symptoms up to 2 years following childbirth. First, the correlation between PTSD scores at T1 and social support, anxiety, and depression symptoms at T2 was examined. Next, the role of higher social support at T1 in lowering PTSD, anxiety and depression symptoms at T2 was investigated (Negron et al. 2013; Stapleton et al., 2012). The focus on social support in this relationship was driven by the finding in Chapter 5 that lower social support from all sources is significantly associated with greater PTSD scores in both cultures. Thus, if greater social support is associated with better subsequent mental health outcomes, it may be an important potential target for intervention.

7.3 Research Questions

1- Is there a relation between demographic information (age, marital status, occupation, delivery type, contraction, pain relievers and abortion) and the scores of PTSD, social support, anxiety and depression symptoms up to 2 years following childbirth (T2)?

2- What is the prevalence of women displaying PTSD symptoms up to two years following childbirth?

3- What are the changes between the scores of PTSD, social support, anxiety and depression following childbirth between T1 and T2?

4- Is there a correlation between PTSD score following childbirth at T1 with depression and anxiety scores at T2?

5- Is there a correlation between social support following birth at T1 with PTSD, anxiety and depression scores at T2?

6- What are the differences between the Saudi and British sample in the scores of PTSD, social support, anxiety and depression at T2?

7.4 Method

7.4.1 Procedure

This study's procedure is part of the main study and can be found in chapter two.

7.4.2 Participants

Fifty-five (28 Saudi and 27 British) women participated in this study, who were recruited from the main original sample for this project at up to 24 months following childbirth (see detailed methods in Chapter 2.)

7.4.3 Measures

Participants completed the Post Traumatic Stress Diagnostic Scale (PDS: Foa, 1995), the Multidimensional Profile of Social Support (MSPSS: Zimet, Dahlem, Zimet, & Farley, 1988) and the Hospital Anxiety and Depression Scale (HADS: Zigmond & Snaith, 1983). The categories calculated for MSPSS and HADS were based on the scales' manuals, further descriptions can be found in the Methods section, Chapter 2 along with the measures utilised for the study.

7.4.4 Statistical analysis

SPSS version 23 statistical software was used to analyses the data. Initially, the prevalence of women who reached PTSD criteria at T1 and T2 was calculated by cross tabulation. The differences between Saudi and British samples in the study variables were explored using the Mann-Whitney test. Moreover, the Wilcoxon test was used to compare the scores on social support, anxiety, depression and PTSD between the first evaluation and the second. Also, Pearson's analyses were run to evaluate the relationship between the continuous (age and PTSD) variables that were normally distributed, whilst Spearman's analyses were run when considering the relationship between the study variables that were non normally distributed between the two times. These analyses were carried out for Saudi and British groups separately.

7.5 Results

7.5.1 Descriptive statistics

The majority of the participants (83.6%) declared that they had not experienced a psychological difficulty at a previous time in their lives. 50.9% of them indicated that they had had a low level support from their friends and family after two years of their childbirth. Just 1.8% of the women reported severe anxiety, while 98% of them had between normal to moderate anxiety after two years of childbirth. In terms of depression, 47.3% of the women did not report any at the time of completing this questionnaire (see Table 7.1).

Table7.1

The frequencies of psychological difficulty, social support, anxiety, depression, PTSD of the T2 sample

Variables		Whole sample		Saudi n=28		British n=27	
		Frequency	Percent	Frequency	Percent	Frequency	
Psychological difficulty	No	46	83.6	27	96.4	19	70.4
	Yes	16.4	16.4	1	3.6	8	29.6
Social support	Low	28	50.9	22	78.6	6	22.2
	Moderate	10	18.2	5	17.9	5	18.2
	High	16	29.1	1	3.5	16	59.3
Anxiety	Normal	23	41.8	3	10.7	20	74.1
	Mild	20	36.4	17	60.7	3	11.1
	Moderate	11	20.0	8	28.6	3	11.1
	Severe	1	1.8	0	0	1	3.7
Depression	Normal	26	47.3	7	25.0	19	70.4
	Mild	10	18.2	5	17.9	5	18.5
	Moderate	17	30.9	14	50.0	3	11.1
	Severe	2	3.6	2	7.1	0	0.0
PTSD	Criteria not met	50	90.9	25	89.3	25	92.6
	Criteria met	5	9.1	3	10.7	2	7.5

Note. Sample N=55. T2=up to 24 months following birth.

7.5.2 The relationships between the demographic information (age, number of children, marital status, occupation, delivery type, contraction, pain relievers and abortion) and the scores of PTSD, social support, anxiety and depression at T2

There were no significant relationships between the demographic information (number of children, marital status, occupation, delivery type, contraction, pain relievers and abortion) and the scores of PTSD, social support, anxiety and depression at T2. Maternal age

correlated with social support (r = .41, n = 47, p = .004) and anxiety (r = -.301, n = 48, p = .038) at T2. This means that the youngest women developed more anxiety and reported less social support when compared to the others.

7.5.3 The prevalence of women displaying PTSD up to two years following childbirth

Five of the participants (9.1%) met the criteria for PTSD at T2, of whom four (7.3%) had not done so at T1. Of the six (10.9%) people who met the PTSD criteria at T1, five of them no longer did so at T2. Only one participant met the criteria at both T1 and T2 (see Table 7.2).

Table 7.2

Cross tabulation to show the PTSD at T1 and T2

		PTSD T2		Total
		Criteria not met	Criteria met	
PTSD T1	Criteria not met	45	4	49
		81.8%	7.3%	89.1%
	Saudi	24	3	27
		85.7%	10.7%	96.4%
	British	21	1	22
		77.8%	3.7%	81.5%
	Criteria met	5	1	6
		9.1%	1.8%	10.9%
	Saudi	1	0	1
		3.6%	0%	3.6%
	British	4	1	5
		14.8%	3.7%	18.5%
Total		50	5	55
		90.9%	9.1%	100.0%

Note. Sample N=55 (Saudi N= 28. British N=27). T1=up to 12 months following birth. T2=up to 24 months following birth

7.5.4 Significant changes between the scores of PTSD, social support, anxiety and depression following childbirth at T1 and T2.

The social support that women perceived following childbirth T1 (Mdn= 72.00) was significantly higher than that two years after childbirth T2 (Mdn=48.00) in both the Saudi and British samples. However, when the samples were split by group, Saudi women reported significantly higher social support at T1 than T2, whilst in contrast, the differences in social support between the two time points for the British sample were not significant. Also, women reported higher anxiety following childbirth (Mdn= 11.00) than they had two years following childbirth (Mdn=8.00) in both samples. However, there were no significant changes in the depression and PTSD symptoms that women had from T1 to T2 (see Table 7.3).

Table 7.3
Wilcoxon test to compare T1 and T2 in social support, anxiety, depression and PTSD

V	Sample	T	Mdn	SD	N	Mean Rank	Ranks	Ties	Total	Z	p
Social support	Whole sample	T1	72.00	16.77	39	28.73	1120.50	2	54	-3.93	<.001
		T2	48.00	20.39	13	19.81	257.50				
	Saudi	T1	71.50	14.90	26	14.38	374.00	0	27	-4.44	<.001
		T2	38.00	9.45	1	4.00	4.00				
	British	T1	74.00	18.78	13	13.92	181.00	2	27	-.498	.618
		T2	73.00	20.66	12	12.00	144.00				
Anxiety	Whole sample	T1	11.00	4.31	43	25.07	1078.00	6	55	-4.64	<.001
		T2	13.00	2.43	23	13.28	305.50				
	Saudi	T1	7.00	3.93	20	12.25	245.00	3	28	-3.85	<.001
		T2	8.00	3.67	6	24.50	147.00				
	British	T1	10.00	1.95	2	9.75	19.50	3	27	-2.72	.006
		T2	6.00	3.97	4	13.75	55.00				
Depression	Whole sample	T1	8.00	4.61	28	26.96	755.00	7	55	-1.718	.086
		T2	12.50	.3.35	14	14.7	197.00				
	Saudi	T1	5.00	2.25	14	12.79	179.00	5	28	-1.798	.072
		T2	8.00	4.81	20	21.05	421.00				
	British	T1	12.00	4.19	9	8.78	79.00	2	27	-.446	.656
		T2	5.00	3.95	11	13.27	146.00				
PTSD Symptoms	Whole sample	T1	12.00	10.34	26	22.35	581.00	5	55	-.546	.585
		T2	15.50	9.754	9	10.94	98.50				
	Saudi	T1	10.00	11.03	17	12.50	212.50	4	28	1.74	.141
		T2	13.00	10.88	24	28.92	694.00				
	British	T1	22.00	11.35	15	13.43	201.50	1	27	-.941	.347
		T2	11.00	9.54	9	15.39	138.50				

Note. T1=up to 12 month following birth. T2=up to 24 months following birth. Mdn=Median. SD=Standard deviation. N=Rank. *Z*=Wilcoxon signed-ranks. *p*=p-values

7.5.5 The correlation between PTSD score following childbirth at T1 and depression or anxiety at T2

There were significant relationships between the PTSD score at T1 and depression at T2 in the whole sample, in the Saudi sample, but not in the British one (see Table 7.4). This

means that Saudi women who had higher PTSD symptoms at T1 were more likely to have depression symptoms at up to two years post-birth, but were not more likely to exhibit higher anxiety symptoms at this time.

Table7. 4
Spearman's Correlations between PTSD scores T1 and PTSD, Anxiety and Depression scores at T2 in subgroups split by country

		PTSD T2	Anxiety T2	Depression T2
PTSDT1	Saudi	-.067	-.131	.502**
	British	.229	.307	.148

*Note **p<.01 Saudi N=28. British N=27. PTSD T1=PTSD score following birth. PTSD T2, Anxiety T2, Depression T2 = their score after two year.

7.5.6 The correlation between social support at T1and PTSD, anxiety and depression scores at T2.

There were no clear significant relationships between social support score at T1 and PTSD or anxiety score at T2 in the whole sample or in UK and Saudi subsamples. This means that the social support that mothers got after birth at T1 did not play a significant role in their reports regarding this aspect of mental health after two years. There was a slight decrease in depression symptoms found in the whole sample for women who reported better social support at T1, but this pattern was not significant in the subsamples (see Table 7.5).

Table 7.5
Spearman's Correlations between Social support T1 and PTSD, Anxiety, and Depression T2 in the whole sample, and subgroups split by country

		PTSDT2	Anxiety T2	Depression T2
Social support T1	Whole	-.178	-.105	-.331*
	Saudi	-.184	.099	-.319
	British	-.253	-.132	-.364

Note **p<.01 Whole N=55. Saudi N=28. British N=27. Social support T1=Social support score after birth. PTSD T2 Anxiety T2, Depression T2=their score after two years

7.5.7 Differences between Saudi and British sample in the scores of PTSD, social support, anxiety and depression at T2

There were differences between British and Saudi samples in PTSD, anxiety, depression, and social support at T2 (see Table 7.6). The Saudi sample were more anxious and depressed, whilst also exhibiting higher PTSD symptoms two years after birth. Moreover, social support was higher in the British sample than in the Saudi sample.

Table7.6
Mann-Whitney test to compare the Saudi and British samples for PTSD, Anxiety, Depression and Social Support at T2

Variables	Saudi		British			
	N	Mdn	N	Mdn	U	P
PTSD	28	15.00	27	10.00	260.00	.047
Anxiety	28	10.00	27	6.00	132.00	<.0001
Depression	28	12.00	27	5.00	134.000	<.0001
Social Support	28	38.00	27	73.00	118.50	<.0001

Note. N=Sample size. Mdn=Median. *U*=Mann-Whitney. *p*=p-values. T2=up to 24 months following birth

7.6 Discussion

This prospective study had the intention of exploring changes in PTSD symptoms between the first year and second year following childbirth within a sample of new mothers. It additionally involved exploring the long-term experiences of anxiety, depression, and social support following childbirth in Saudi Arabia and Britain. 9.1% of 55 women (n=55) in the current study met the criteria for PTSD up to two years post-partum, while 10.9% of this sample did so at T1 (first year) and it would indicate that PTSD decreases slightly in frequency within two years of birth. This is supported by Denis, Parent, and Callahan's study (2011) that showed that the prevalence of PTSD symptoms following childbirth decreases from 5% (at 1 month postpartum) to 2.9% (at 9 months postpartum). That is, the percentage of mothers who fully meet PTSD criteria at different times after the birth gradually decreases. However, there appears to be considerable individual variation in satisfying the PTSD criteria across this time: four (7.3 %) of the participants in this study did so at the assessment T2, but not before. Of the six (10.9%) women who met the PTSD criteria at T1, almost all of them (five) no longer did so at T2. In other words, only one participant met these criteria at both time points. It is important to note that the participants' time since birth for the T2 assessment was variable. For some mothers, the assessment period between T1 and T2 was almost two years, while for others it was only a few months and hence, this could have had an effect on the rates reported at each stage. Also, the Wilcoxon test results indicated that there was no significant change overall between T1 and T2 in PTSD symptoms, which suggests that the mothers' PTSD symptoms remained stable over the two-year postpartum. This perspective is supported by Soderquist, Wijma, and Wijma's study (2006), who argued that the PTSD scores do not decrease over time. It is also in accordance with Andrykowski et al., (2000) who showed that PTSD symptoms do not reduce over time for cancer survivors. In contrast, Denis et al. (2011) found that PTSD symptoms had

decreased over time for women following childbirth. These inconsistent results may be down to the different procedures utilised within the studies.

In addition, demographic information, such as age, number of children, marital status, occupation, delivery type, contraction pain relievers, and abortion, did not contribute to the explanation of these findings, as there was no correlation with these variables and the PTSD score. This suggests that PTSD might not be associated with some of the factors that have been linked to other mental health problems.

The current study findings have also confirmed that the first year following childbirth is a more anxious period for mothers in contrast to the second year and yet, their depression symptoms remain generally stable over the same period. Moreover, mothers with PTSD at T1have a greater probability of experiencing symptoms of depression, but not anxiety at two years postpartum. This outcome is in line with findings from other studies (e.g. Cerulli et al. 2011; Loveland Cook et al. 2004; Smith et al. 2006). A study discovered that 80% of PTSD patients also had symptoms of depression (McFarlane, 2000). This outcome is not surprising, as individuals that experience PTSD in the long-term may well experience symptoms of depression, which highlights the importance of prevention and intervention procedures aimed at identifying PTSD symptoms following childbirth, that for certain situations, could develop into more severe issues.

The overlaps between PTSD and depression symptoms mean that postpartum mental health problems must not be considered as separated disorders. Breslau, Davis, Peterson, and Schultz (2002) commented how PTSD and depression have similar symptoms, which highlights the importance of an accurate diagnosis to determine the differences between PTSD and depression.

The current study findings also confirmed that mothers in the first year following childbirth receive more social support than during the second year. Soderquist et al. (2006)

also came to the conclusion that women with PTSD symptoms receive less social support over time in the postpartum period. It is well known that the early postpartum period is a stressful time, especially for new mothers who need to adjust to the new roles and responsibilities, which may motivate others (around the mother) to give them more support (Beck et al., 2011). During the postpartum period, mothers gradually receive less support and are increasingly presumed to be able to perform their duties independently (Beck et al., 2011). So, it is likely that in the later period, mothers feel that they have less support compared to the period that follows birth directly. Moreover, mental health symptoms could negatively impact on the mother's social relationships, which consequently influences the level of support that they have, leading to their thinking that they are receiving less of it (Soderquist et al., 2006).

Furthermore, the social support that mothers receive at T1 postpartum, is not related to the mother's mental health (PTSD, anxiety) at up to two years after childbirth. However, there was a slightly decrease in depression symptoms within the whole sample, if social support was high at T1. The fact that this relationship was not significant within the subsamples may due to power – the strength of relationships is the same, but they do not reach significance in the smaller sample sizes. Even though some other studies have also found no correlation between social support and PTSD symptoms (Lesanics, 2004; Shaban et al., 2013), it has been thoroughly demonstrated that social support has an impact in maintaining other aspects of postpartum mental health (Brewin et al., 2000; Charuvastra & Cloitre, 2008; Ozer et al., 2003; Rahman, Iqbal, & Harrington, 2003). This absence of significance could be explained by the long period between received the social support at T1 after birth and occurrence of mental health (PTSD, depression, anxiety) at T2 thus the influence and the association are weak between social support and these variables.

The results indicate that Saudi women, in contrast to British women, experience greater anxiety, depression, and PTSD symptoms after two years postpartum, which is reflected at T1 too. The significant differences can be explained by a cultural perspective, as mentioned earlier in this thesis, whereby Saudi culture typically expects the mothers to parent and care for their baby, while the fathers are responsible for financially supporting the family. This may be stressful and create overload for the mother, which can increase mental health problems. This is potentially different from the British culture, where fathers are often more involved in parenting, which releases some of the pressures for mothers that may aggravate mental health problems (Feng & Burleson, 2006). This potential explanation is also supported by the fact that British women reported greater social support at T2 and also at T1 than did Saudi women.

7.7 Strengths and limitations

The strength of this study is that it is one of the relatively few studies that have included comparison in the change of PTSD following childbirth over two years between two different cultures. Further, this study addresses a gap in the literature, by shedding light on changes in mental health throughout the postpartum period. However, the generalisability of these findings is restricted by the small sample size. Another limitation is that there was no control for any treatments, either psychological or pharmacological, that may have arisen throughout the study, or a record of other traumas that could have occurred for the mother between T1 & T2.

7.8 Future directions

In order to be able to generalise results, a study with a larger sample size of women during pregnancy and after birth would allow for expansion to several types of analyses. In addition, future studies could seek to provide clearer accounts of the etiologic changes in mental health symptoms during the course of pregnancy and through the prepartum and postpartum periods. Future longitudinal research should also seek to gain clearer and more in-depth insight into the chronology of the influence of PTSD on postpartum women.

The conclusions that can be drawn from this chapter is that there there are fluctuations in the number of women meeting PTSD criteria following childbirth over two years, despite no clear changes occurring for levels of PTSD symptoms in the sample over this period. Women suffering from higher anxiety and perceive more social support over the first year postpartum, in contrast to two years postpartum. Also, women who have PTSD symptoms at T1 are also more likely to have higher levels of depression at two years postpartum. Understanding PTSD and other mental health problems that occur across time during postpartum would help to guide the development of treatment interventions for women experiencing difficulties throughout the postpartum period especially in Saudi Arabia.

CHAPTER EIGHT
GENERAL DISCUSSION

This chapter provides an overview of the findings of this thesis and the identified literature gaps are discussed in relation to these. The aims of the thesis are restated and the key findings summarised. The strengths and weaknesses of the chapters are discussed, future research avenues proposed and recommendations are provided. Finally, research and clinical implications are covered and an overall conclusion is drawn.

8.1 A summary of the gaps in the current literature

It is becoming increasingly more widely recognised that some women develop post-traumatic stress disorder (PTSD) following childbirth. Many studies have been carried out in the United Kingdom and other western countries, whilst there have been fewer such endeavours in non-western countries and the general findings are that between 2.8 and 9.0 % of women develop PTSD following childbirth (Adewuya et al., 2006; Ayers et al., 2008; Hanlon et al., 2009; Nyberg et al., 2010; Olde et al., 2006). A review of the current research in the Arab countries has revealed a dearth of studies that cover this topic; indeed, just one study was found that considered Arab women and Israeli Jewish ones in Israel (Halperin et al., 2015).

Another research gap that was identified is that there was no evidence in support of any particular tool choice for measuring PTSD following childbirth. There are a multitude of measures employed to assess its symptoms following childbirth, all of which differ in regards to the PTSD criteria they cover, their psychometric properties and the trauma type

they are designed to assess. This wide variation and lack of support for any particular PTSD criteria, makes the choice of an appropriate tool difficult due to lack of validation.

Furthermore, a substantial body of literature has extended the search to discovering the risk and associated factors that are related to PTSD following childbirth (Ayers, 2004; Maggioni et al., 2006; Slade, 2006; Soderquist et al., 2006). One of these associated factors is the mother's assumptions, in terms of these assumptions or expectations not being met or falling well short. A woman may shatter her prior assumption toward this event, which may become generalised to her whole world and thus, lead to the development of PTSD symptoms. Indeed, one study reported that around 31% of women who experienced unexpected medical interventions during birth, displayed PTSD symptoms postpartum (Lyons, 1998).

Other factors associated with PTSD following childbirth are depression and anxiety (Soderquist et al., 2009). These are often related and occur together at some point in the postpartum period, when the mother needs to adjust to the pressures, e.g. the new roles, new time demands, and responsibility (Brown et al., 2001). Religion and social support are also associated factors that have impacts on adjustment to traumatic events by increasing the sense of security and restoring balance (Khouzam, 2000; Creedy et al., 2000). Religion plays a role in how people adjust to traumatic events. There are suggestions within the literature that religious beliefs are an important in growing through trauma (e.g.; Pargament, Smith, Koenig, & Perez, 1998; Thompson, & Vardaman, 1997). However, religion can also be a source of stress, if religious beliefs suggest maladaptive ways of understanding an event (Resick et al., 2008). Some people have experienced greater cynicism and a loss of religious commitment following trauma (Schwartzberg, & Janoff-Bulman, 1991), while others reported no change in their religious beliefs (Overcash, Calhoun, Cann, & Tedeschi, 1996). However, it is not contradictory to shattered assumptions theory, which would argue

that religion acts as a system of assumption restoration in the aftermath of trauma, which in turn, leads to long-term mental health gains (Calhoun, Tedeschi, & Lincourt, 1992).

Whilst a number of studies considered factors, such as mental health and social support in a Western context, none has considered how assumptions and religion could be involved in the development of PTSD following childbirth. Additionally, there is a significant absence of any study of this type in the Arabic countries.

When considering the impact of traumatic childbirth and its consequences (PTSD symptoms) on the mother and her baby, it has been found that negative birthing experiences can also affect mother-infant bonding (Elmir, 2010; McDonald, 2011). One of the frameworks that could explain problems with bonding as a result of traumatic childbirth is maternal attachment style (Bowlby, 1973; Grossmann et al., 1988). Regarding which, emotional balance can be restored and traumatic wounds healed, if a person has a secure attachment style, because she/he can seek and find the needed support. Conversely, those with an insecure attachment are often unable to find the needed support and thus, are plagued by feelings of loneliness, helplessness and rejection. This is because any form of trauma has the capability of shattering personal safety and the individual's confidence in the protection and support offered by the attachment figure, which can lead to PTSD (Mikulincer et al., 2016). This may lead to the mother avoiding her baby, because it triggers her memory about the traumatic event, which may lead to poorer bonding (Muzik at el., 2013). There is a dearth of literature in the two cultures (Saudi and British) that focuses on the relationships between traumatic childbirth, mother attachment as well as mother and infant bonding.

From what has been previously stated, it is clear that the childbirth phenomenon has been quite well researched in a western, British context. However, in a non-western culture, in this case Saudi Arabia, this has not been addressed, to the best of this researcher's knowledge. Thus, this thesis has been aimed at filling these gaps by probing these issues in

the Saudi context and comparing the findings with those from the United Kingdom.

8.2 Aims of the thesis

As abovementioned, this thesis was aimed at exploring the prevalence of PTSD following childbirth in Saudi Arabia and compares the findings with those from the United Kingdom context. A second aim was to review the current PTSD measures that have been used to assess the disorder following childbirth and to identify a suitable one to use in this research. Third, the thesis involved exploring the key vulnerabilities and predictors of PTSD symptoms up to one year following childbirth. Fourth, there was examination of the correlations between mother attachment styles, PTSD following childbirth and bonding with the baby. Fifth, observation of the changes in the symptoms of PTSD, depression, anxiety, and level social support over the two years post-childbirth was made. Finally, these factors were compared in two cultures: Saudi Arabia and the United Kingdom. Figure 8.1 summarises the thesis.

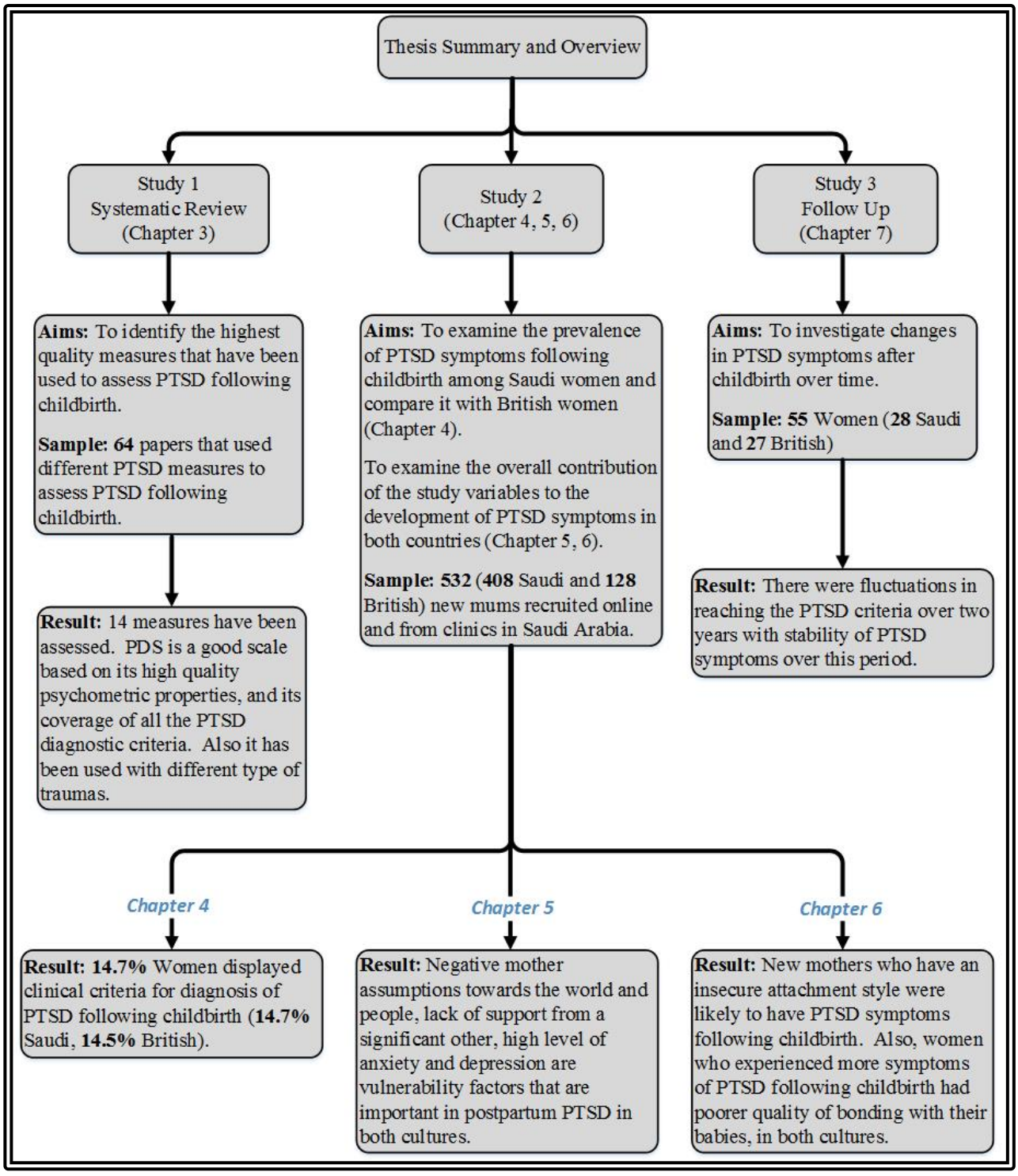


Figure 8.1: Overall summary of the thesis

8.3 Summary of results and discussion

In order to identify a suitable PTSD measure to assess postpartum PTSD, a systematic review of the measurements that have been used to assess it following childbirth was completed. It was found, in Chapter 3, that the most effective measure was the PDS scale (Foa, 1997), as it provides the most accurate postpartum PTSD assessment tool, having been used in 64 studies that passed the inclusion and exclusion criteria. The effectiveness of the PDS (Foa, 1997) scale was based on its coverage of all the PTSD diagnostic criteria, high quality psychometric properties and the previously used with the same postpartum PTSD sample, being validated on a Saudi sample (see Chapter 2 p.58). Indeed, Elhai et al. (2005) and Old et al. (2006) reported that the PDS scale was the most frequently used trauma measurement scale. Another commonly used measure in the field, the IES, which was employed 11 times within studies in this thesis's systematic review (Chapter 3), functions well as a measure of PTSD symptoms, but is not as appropriate a tool to use for PTSD diagnosis (Joseph, 2002). Due to these reasons, the PDS was adopted for use within this research to assess PTSD following childbirth.

For this thesis, a wide range of methods was employed for recruitment (online, parenting groups, and in clinics) to increase the range of socio-economic and ethnic backgrounds of the participants, thereby enhancing the probability of representing the population. Also, the questionnaire's online responses were mandatory to reduce the frequency of missing data. However, this procedure might have had an impact on the accuracy of the participants' responses when they did not want to answer or did not know how to respond. Also, perhaps as a result of this sitting there were a number of participants who did not complete the study and thus, there may have been a sample bias.

When exploring the prevalence of PTSD following childbirth in Saudi Arabia and comparing it with the United Kingdom, Chapter four showed that a total of 14.7% women

displayed symptoms that met the clinical criteria for diagnosis of PTSD following childbirth (14.7% of the Saudi sample and 14.5% of the British sample). The prevalence was not different between British and Saudi Arabia, which is consistent with other studies that have found that PTSD prevalence rates are largely similar across countries (Atwoli, 2015). We can have confidence in these percentages given that the study's sample was reasonably representative of the new mothers in the Saudi population since, as abovementioned, a range of methods was employed for recruitment to increase the range of backgrounds of the participants to represent the diversity of the community (e.g. online, hospitals in different regions of Saudi). This high rate of reported PTSD following childbirth in the study samples compares to that expected in any population highlights the potential distress experienced by many women following childbirth that is likely to go unreported. This emphasises the importance of the need for health professionals supporting women after childbirth to look out for such symptoms. It also highlights the salience of continuing to research the causes, prevention, and treatment of PTSD following childbirth.

Despite there being no significant difference between the percentage of women displaying clinically significant PTSD symptoms following childbirth in either of the two focal countries, Saudi women scored higher on anxiety and depression as well as exhibiting more PTSD symptoms at the first year following birth than British women. This higher level of reported Saudi symptoms could be attributed to the overlap between PTSD, anxiety and depression postnatal symptoms (Czarnocka and Slade, 2000; Ballard et al., 1995; Reynolds, 1997), so the higher number of symptoms of depression and anxiety within the Saudi sample, unlike the British sample, makes it hard to distinguish between these disorders in the Saudi group, as discussed in Chapter four.

Saudi women were more likely to have a normal vaginal delivery, had induced contractions, and used fewer pain relievers than British women. This can probably be

attributed to the cultural perspective, whereby the concept that a normal delivery is a result of God's influence in Muslim society (Altaweli, 2015), and hence, Saudi women are encouraging to accept the pain as a natural part of the labour process. Conversely, caesareans and other medically induced deliveries are perceived as unnatural processes that rob women of their ideal, natural, delivery (Altaweli, 2015; Latinejad Roudsari et al., 2015).

In the Saudi context, those women who fulfilled the criteria for a PTSD diagnosis were more likely to have recorded their response within the second half, rather the initial half, of the year after giving birth. They were also more likely to have had an assisted delivery, experienced natural contractions, and were more likely to report previous psychological difficulty than the Saudi women who did not fulfil the PTSD criteria. Furthermore, half of the British women who fulfilled the PTSD criteria following childbirth had a history of psychological difficulties, which is a higher frequency than expected

Previous research has supported some of these findings, while others have not been consistent with the literature. Denis et al. (2011) and Olde et al. (2006) stated that PTSD symptoms were reduced with time following the birth, which is contrary to this study's result, while others have been concordant with the perspective that complicated deliveries (i.e. those involving assisted delivery) have a greater probability of developing PTSD symptoms due to unexpected complicated and painful conditions (MaClean, McDermott, & May, 2000). Also, this finding is consistent with a study that identified a positive correlation between women's history of psychological difficulty and PTSD following childbirth (Wijma et al.,1997).

However, for this thesis, the potential role of religion in the risk for PTSD in the year following childbirth was examined and it was found not to be an associated factor, which is supported by several studies in different contexts (e.g. Pyevich et al., 2003; Goldenberg & Matheson, 2005; Lilly et al., 2011). This finding may be interpreted by considering the

religiosity measures. As was mentioned in Chapter 5, the MMRI scale is focused more on the religion practice (e.g. how often do you usually attend religious services?, How many church clubs or organisations, do you belong to or participate in?) more than an individual's faith and beliefs, which is more general in the different religions e.g. Islam, Christianity and Hinduism. For this study's purposes, one religion measure was needed for both samples (Saudi/British) to allow comparison between samples and thus, the MMRI scale was used, because it is commonly used to examine religiosity (e.g. Kaslow et al., 2004; Jang & Johnson, 2003; Mowbray et al., 2000). However, it was originally developed for African Americans residing in the USA, so it does not describe the Islamic religion (e.g. basic daily and yearly practices that might better assess the level of Islamic religiosity involvement, including praying, fasting, and Zakat, which is giving money to poor people). Also, Saudi society is a homogeneous religious society (Alyami, 2015) with not enough variation in the data to show these correlations. Thus, this may explain the lack of correlation in the Saudi sample between PTSD symptoms and religion.

The present study was aimed at contributing new understanding regarding PTSD following childbirth by integrating the theory of shattered assumptions, for previous work on through this theoretical lens has not considered this context. The results have shown that shattered assumptions are significantly related to PTSD symptoms, which suggests that this theory is a valid construct for investigating women with PTSD following childbirth. That is, holding shattered world assumptions can have significant, distressing effects on the mother's mental health.

With regards to gaining a clearer vision by identifying the key vulnerabilities and predictors of PTSD symptoms up to one year following childbirth, in Chapter five, it was elicited that mothers' negative assumptions towards the world and people, lack of support from a significant other as well as high levels of anxiety and depression are vulnerability

factors that are important in postpartum PTSD symptoms. Overall, owing to the cross-sectional nature of the study, it is not clear whether these factors are risk factors for the development of PTSD or whether the development of PTSD symptoms following birth increases negative assumptions, reduces social support along with there being increased anxiety and depression.

By considering the cultural differences between PTSD following childbirth and associations factors, slightly different patterns of correlations were seen between the risk factors and PTSD symptoms in Saudi and British women. Specifically, Saudi women who have PTSD symptoms following birth were found to have more negative assumptions about people and the world, which did not appear in British sample.

In addition to the absence of a significant relationship between religion and PTSD following childbirth, there were no clear differences found between the Saudi and British samples in the correlation pattern between PTSD and social support, anxiety and depression (Chapter five). Although culture plays an important role in the risk factors listed above, differences have emerged in some manifestations of risk factor. This can be attributed to the fact that, for example, the prevalence of depression and anxiety worldwide is similar, but its manifestations vary slightly (Becker, Al Zaid, & Al Faris, 2002; Algahtani & Salmon, 2008).

When examining the relationship between symptoms of PTSD following childbirth and bonding with the infant, and its relationships with mother attachment, Chapter six showed that, as expected, new mothers who reported more attachment anxiety in their relationships, lower closeness and dependence were more likely to report PTSD symptoms following childbirth. Women who experienced more symptoms of PTSD following childbirth also had poorer quality of bonding with their babies (Ayers at el., 2006; Ayers et al., 2014; Parfitt & Ayers., 2009; Figueiredo et l.,2009; Muzik at el.,2013). Also, the mothers' attachment style would appear to interfere with the mother-baby bond. These

correlation patterns were different between the two focal countries (Chapter 6), e.g. pleasure in the interaction indicator was not correlated with any attachment styles in the British sample. Similarly, the absence of hostility as bonding style showed no correlation with any attachment styles in the Saudi mothers. This could be as a result of the inevitable interaction between the mother and her baby, particularly in the first 12 months, regardless of her mental health. As such, no relationship between pleasure in interaction and PTSD symptoms was identified. Also, social desirability could influence new mothers in their interactions with their babies and according to their reports to researchers. This indicates correlations between culture, PTSD symptoms and attachment style, which highlights the need for further research.

Also, the studies within this thesis were extended to observe the change in the symptoms of PTSD, depression, anxiety, and social support up to two years postpartum. Chapter 7 indicated that there were fluctuations in the number of women who met the PTSD criteria following childbirth over two years with stability of PTSD symptoms, depression symptoms and a decrease in social support and anxiety symptoms over this period.

Overall, whilst the differences between the two focal cultures in relation to PTSD following childbirth and its related factors were not large, it is still the case that there were considerable differences in some aspects. The Saudi women scored significantly higher on anxiety and depression and symptoms of PTSD than the British women. Also, there were some differences in the pattern of attachment and bonding relationships with PTSD between the two cultures. However, there were no clear differences between the two cultures when it came to PTSD diagnosis and some vulnerability factors, such as some demographics, and the assumptions.

Whilst religion is a different concept to culture, which is broader and includes different components (e.g. customs, traditions and values), it is an integral part of the cultural

component of any society. However, religion has not been associated with PTSD in either culture, suggesting that it is not the religious differences between cultures that underpin any differences between Saudi and UK women's experiences.

The findings of this thesis suggest that postpartum specialists should look for symptoms of distress following childbirth and be aware of the associated risk factors, e.g. mothers' assumptions and attachment style, social support, anxiety and depression. Future research should inspect the potential for PTSD following childbirth in non-Western countries and explore how cultural factors (e.g. Hofsted dimension) influence an individual's experience in different cultures on this matter.

To summarise, first, the findings of this study have shown that the prevalence of PTSD following childbirth was different between British and Saudi samples. This was not unexpected given that another study has shown that PTSD prevalence rates are largely similar across countries (Atwoli, 2015). Second, the theory of shattered assumptions has been one of the most accepted theories that has provided cognitive explanations for PTSD, in general (Horowitz, 1975). The outcomes of this thesis (chapter 5) have indicated a correlation between women's world assumptions and PTSD following childbirth, a contribution that supports the shattered assumptions theoretical interpretation of PTSD symptoms. Third, this thesis contributes to the literature that examines whether religion has any correlation with PTSD following childbirth. Regarding which, no support for the role of religion in PTSD following childbirth was elicited, which is in contrast to some previous studies that found an association between religion and PTSD, in general (Hussain et al., 2011). Fourth, social support, anxiety and depression correlations with PTSD following childbirth were in line the existing literature concerning the relationship between these factors and PTSD. Fifth, in terms of attachment style and bonding, the associations established within this thesis between attachment, bonding and PTSD following childbirth

support previous studies that have pointed to a relationship between attachment styles and PTSD for different types of traumas (Besser, & Neria, 2010, Armour et al., 2011, Forcade-Guex et al., 2011; and Muzik et al., 2013).

8.4 Strengths and limitations

8.4.1 Strengths and contribution to knowledge

To the best of this researcher's knowledge, this study is the first of its kind conducted in an Arabic country evaluating PTSD following childbirth and comparing the findings with those from the UK. The Saudi sample was large and included representation from women from diverse backgrounds and nationalities, who were living in Saudi Arabia, being recruited online and from a community covering a wide diversity of people. These women were originally from Arabic countries (Egypt, Syria, Jordan, Iraq, Sudan, the Yemen and Palestine) as well as from African countries (Eritrea, Somalia and Chad), so the results from this study could be generalised to women from non-western countries. Also, the method of 'diagnosis' for the study was based on using the Posttraumatic Diagnostic Scale (PDS: Foa, 1997), which screens and assesses all the PTSD criteria based on DSM-IV, having achieved the highest quality scores from the systematic review of scales measuring PTSD following childbirth (Chapter 3). This study is the first that has involved translating the PDS (Foa, 1995) scale and another six scales (WAS: Bulman, 1989; MMRI: Levin et al., 1995; MSPSS: Zimet et al., 1988; RAAS: Collins, 1996; MPAS: Condon & Corkindale, 1998; HADS: Zigmond & Snaith, 1983) into the Arabic language and demonstrating their reliability in Arabic women following birth in Saudi Arabia. Also, part of this thesis was focused on the relation between a mother's attachment style and her bonding with her infant and the relationship with PTSD symptoms following childbirth, which is the first work exploring these relationships both in the Saudi and British cultures. This thesis is the first to explore

the mothers' assumptions and religion as vulnerabilities and predictors of PTSD symptoms following childbirth, whilst also being the first to investigate any differences between western and non-western countries.

8.4.2 Limitations

There are a number of limitations regarding the current research. The total British sample size was relatively small in comparison with the Saudi one and so, the prevalence rates in relation to the former may well be less suited to generalisation. The follow up study's sample was also small and so is unlikely to be representative of the main sample. Moreover, the data were not normally distributed, thereby limiting their analyses and due to the cross-sectional design of the study, causal assumptions were not possible. As the study was dependent upon self-reported information from new mothers, it is possible that a social desirability response bias was introduced, whereby the women's responses were dictated by her social values, particularly in the case of a collective culture like that of Saudi Arabia. The PTSD diagnosis was not verified, with the diagnosis merely being determined using the self-reported information provided from the questionnaires and hence, there could have been overestimation of the number of valid cases. There were also differences in the recruitment process for the two countries, with the British sample being recruited online and from the baby lab at University of Birmingham, whilst the Saudi sample was obtained online and from clinical settings. However, this matter was considered in terms of potential sources of difference, but no variances were revealed that would have prevented the combining of these data together. Additionally, the PDS was derived from the older version of the DSM (DSM-IV), rather than the newer DSM-5 version. One of the implications of the amendments in DSM-5, is changing from three to four symptomatic criteria, which may lower the rates of women reported as having experienced clinically significant PTSD. In contrast, the removal of criterion A2, where the person has to respond to the event with intense fear, helplessness

or horror, could increase prevalence rates of diagnosis of PTSD following traumatic births (Boorman et al., 2013; Ayers, 2013). Furthermore, whilst asking the participants to respond to just a childbirth event and not any other traumatic event when completing the PTSD items, it is possible that other traumatic events before or since the birth have had an effect on the mother. Furthermore, the research does not consider any information surrounding the features of the birth apart from method of delivery and pain relief, or how women viewed their birthing experiences (i.e. whether or not they viewed them as traumatic). Finally, the follow-up study failed to consider the effects of any treatment that the participant may have had between baseline and follow-up time.

8.4.3 Future Research

Whilst the participants of this study were asked to respond concerning a childbirth event and no other traumatic experience, it is possible that other traumatic events before or since the birth had an effect on the results. Such events could be systematically taken into account in future studies. Furthermore, this study involved considering the factors associated with postnatal PTSD symptoms for up to 24 months and there remains the need for large prospective longitudinal research studies that assess prevalence along with the risk factors in pregnancy as well as following up mothers for longer periods. Moreover, future research studies should seek to determine whether the development of PTSD is culturally influenced or not by examining the cultural mechanisms that may underlie the development of PTSD symptoms, such as the assessment of culture-specific factors, e.g. individualism vs. collectivism, feminism vs. masculinism. Furthermore, developing appropriate screening tools or amended PTSD scales to assess the DSM-5 criteria could prove beneficial in future work.

8.5 Implications

8.5.1 Implications for the research setting.

It is expected that the results of this study will help inform researchers in selecting the most suitable scales for assessment of PTSD symptoms following childbirth, which will, in turn, lead to their obtaining more accurate and robust results. This study's outcomes contribute to the gaps in the literature regarding cultural difference in PTSD following childbirth, particularly in non-western countries and the changing course of PTSD following childbirth over time. Through the development of a postpartum PTSD research agenda, the structure of maternity services could be changed by identifying the protective factors, i.e. the mother's mental health prior to birth and the availably of social support, which may reduce the number of traumatic births that occur.

8.5.2 Implications in the clinical setting

The findings of this thesis have raised awareness of the potential impacts of PTSD postpartum and highlighted the importance of improving postnatal healthcare services for women by offering a routine screening service for this disorder. It is also necessary to distinguish PTSD from post-natal depression, for the outcomes of this thesis have suggested comorbidities between depression and PTSD. This will help reduce the social, economic and psychological implications associated with misdiagnosis.

It is recommended that the Saudi Arabian health system provides mothers with birth classes to prepare them for the childbirth event, since there are no official ones at present. Such classes would help mothers to build positive expectations about the birth experience to come, as it is known that women's assumptions about the birth is an important predictor of traumatic experience (Soet et al., 2003). Moreover, these classes can provide a socially supportive environment for the mothers by listening to their concerns and thus, helping to alleviate any anxiety they feel about the impending birth. Moreover, it is necessary to

increase the awareness of the importance of social support from the partner, family and the health team dealing with the women in protecting women from the development of PTSD symptoms as well as helping to relieve such symptoms following birth.

8.6 Conclusions

The findings of this project fill a considerable gap in the literature, by eliciting that postpartum PTSD is a serious and common condition that could affect 14% of women in the UK and Saudi Arabia. It has also emerged that many more mothers could well be suffering from one or more of PTSD symptoms, although they do not meet all the DSM- IV criteria for the disorder. It is recommended that the PDS (Foa, 1997) is a good tool available to the researcher for assessing PTSD, given its high quality psychometric properties and its coverage of all the PTSD diagnostic criteria. The findings of this thesis have also indicated that are the correlations between postpartum PTSD symptoms and more dysfunctional assumptions about the world, more anxiety, more depression and less social support – across both cultures. By contextualising the risks of mental distress during the postpartum period in a more comprehensive manner than previously, it has been shown in this thesis that new mothers who have an insecure attachment style (anxious, independent or lack of closeness) are also more likely to be at greater risk of developing PTSD symptoms following childbirth.

These preliminary data imply that prenatal screening of attachment style could help to tailor the care of women before during and after the birthing process to prevent the development of PTSD by providing additional support to the mothers, who have insecure attachment commensurate with their style, e.g. anxious or avoidant. It was also found that women who experienced PTSD developed a poorer bond with their infant than those who did not suffer a traumatic birth. This indicates the need for additional help for women who have experienced such a birth to reduce the risk of negligence or rejection of the infant and

to promote positive bonding. This research has also involved eliciting that the symptoms of PTSD are relatively stable for two years postpartum, thus indicating that there needs to be a longer term tailored service of psychological and additional health care available for women who have undergone traumatic birth experiences. This thesis has made a valuable contribution regarding PTSD following birth, in particular, in a non-Western culture, for this previously was limited to western cultural contexts. In sum, the extant research clearly indicates that post-traumatic stress symptoms or PTSD related to childbirth constitute a significant postpartum mental health problem. This needs significantly more attention from health practitioners in the field of pregnancy, delivery and postpartum care, as well as from researchers in the field of psychological trauma.

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APPENDICES

APPENDIX A: RECRUITMENT MATERIALS & MEASURES

. A-1 Study 2 the ethic approval

. A-2 Online advertising.

. A-3 Leaflets for the nurseries and parenting groups.

. A-4 Study 2 information sheets.

. A-5 Study 2 debriefing information.

. A-6 The follow up study ethic approval.

. A-7 The follow up study information sheets.

. A-8 Study 2 demographics questionnaire.

. A-9 Posttraumatic Stress Diagnostic Scale (PDS; Foa, 1995).

. A-10 World Assumption Scale (WAS; Janoff-Bulman, 1989).

. A-11 The Multidimensional Measure of Religious Involvement (MMRI; Levin et al.,1995).

. A-12 The Multidimensional Profile of Social Support ((MSPSS; Zimet et al.,1988).

. A-13 The Revised Adult Attachment Scale (RAAS; Collins, 1996)

. A-14 The Maternal Postnatal Attachment Scale (MPAS; Condon & Corkindale, 1998).

. A-15 The Hospital Anxiety and Depression Scale (HADS; Zigmond & Snaith,1983).

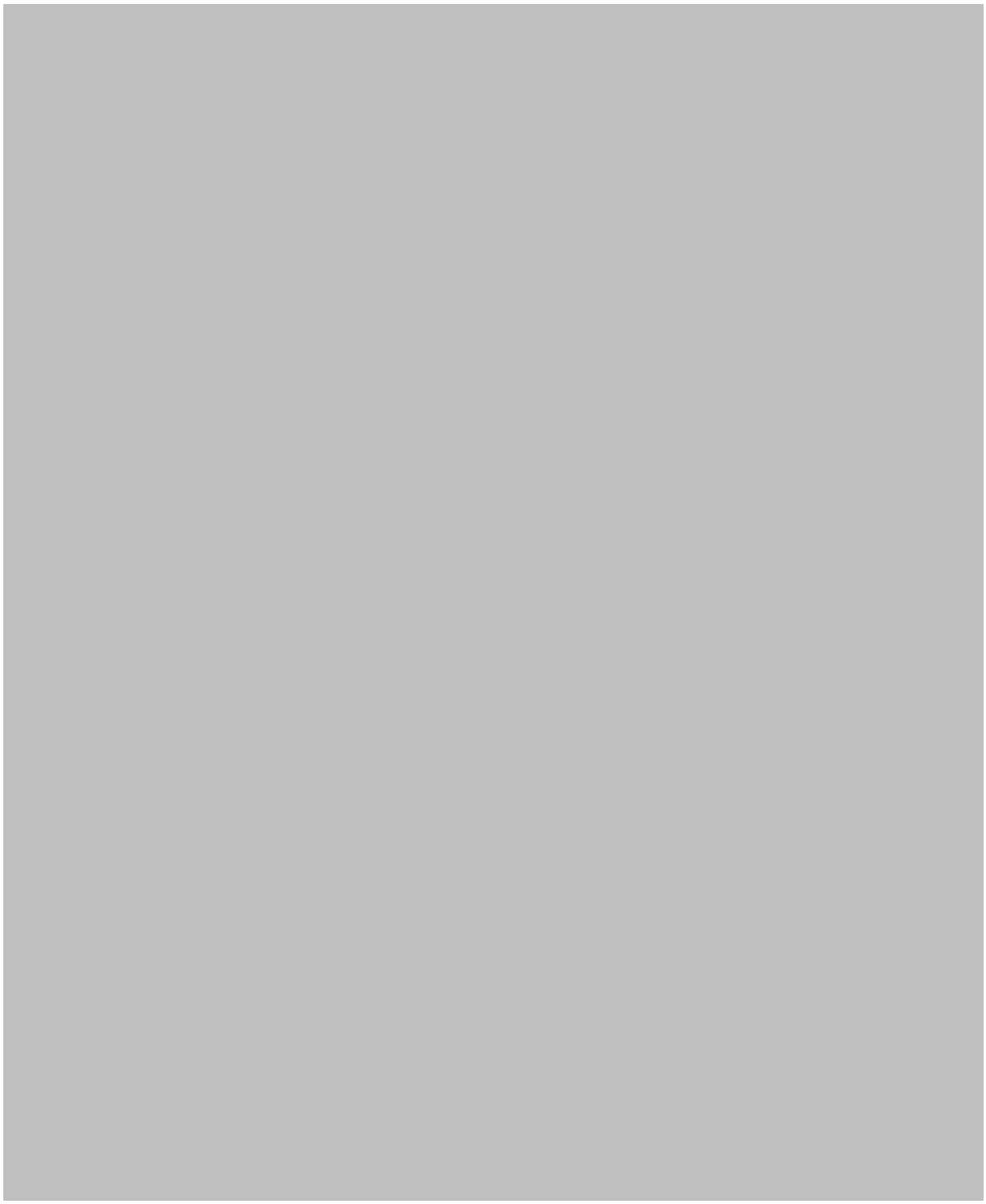
. A-16 The follow up study demographics questionnaire

. A-17. The follow up study open response.

APPENDIX B: ARABIC RECRUITMENT MATERIALS & MEASURES

APPENDIX C: ADDITIONAL TABLES

APPENDIX A-1: STUDY 2 ETHIC APPROVAL



Litter for website leader

Dear (website leader),

My name is Fahdah Alhussainan. I am a PhD student at the School of Psychology, University of Birmingham.

At the School of Psychology, University of Birmingham, we are carrying out some research looking at

The Post-Traumatic Stress Disorder (PTSD) after Childbirth. We are inviting women who get birth in the past two years, to complete our anonymous online survey, which should take about 45 minutes.

I believe that the visitors to your website might be interested in participating in a study like this. I would like to ask your permission to post an advertisement on your website that will briefly introduce our research project and will invite women who get birth in the first time to complete an online questionnaire. The questionnaire used in this research study has been approved by the Research Ethics Team of the University of Birmingham, the completion of which is going to be anonymous and will last no more than 45 minutes. Participants who show interest in this research study will participate voluntarily and will be able to withdraw their data at any time before the data analysis starts. If you wish to examine the questionnaire in advance before the posting of the advertisement please follow the link below.

Thank you for your time and consideration.

Kind regards,

Fahdah Alhussainan.

APPENDIX A-3: LEAFLETS FOR THE NURSERIES AND PARENTING GROUPS

First Time Mums Needed

UNIVERSITY OF BIRMINGHAM

At the University of Birmingham, we are carrying out some research examining how women cope following birth. We are looking for participants (who have become **A FIRST TIME MUM IN THE LAST YEAR**) to complete a survey of their feelings following birth.

The survey asks about women's birth experiences, and how they feel about their infants. Carrying out this research will get a better understanding of how best to support women through childbirth experiences. The study has been approved by the University of Birmingham Research Ethics Committee.

Taking part in this project is voluntary and if you would like, you have a chance to WIN **a 150 AMAZON VOUCHER** by entering a prize draw. You can withdraw from the project (by exiting the questionnaire) at any time without giving a reason.

If you would like to take part you could do either:

- Online by copy the web address below into your web browser.
- Contact the researcher through the email to send you the study link or a paper copy of the questionnaire, and post it back to the researcher at the same envelope (we provide a stamped addressed envelope).

[redacted]

Thank you,,

Fahdah Alhussainan (Doctoral Researcher)

School of Psychology, University of Birmingham

[redacted]

Information Sheet

1. Research Project title:

The Role of Attachment in the Development of Post-Traumatic Stress Disorder (PTSD) after Childbirth

2.Welcome information

Dear mothers,

You are invited to take part in a research project. Before you decide whether or not you would like to participate, it is important to understand what the research involves. During this study, you will be asked to complete a set of questionnaires about your labour. Your participation in this research is extremely valuable to us and will help us to obtain a clearer picture about Post-Traumatic Stress Disorder (PTSD) after Childbirth and enable us to better structure our future interventions. Taking part in this project is entirely voluntary. You do not have to take part and you can withdraw from the project at any time without giving a reason.
However, we would really value your input in this research. Please read the following information and if you would like to take part please press the "Next" button at the bottom of the previous page.

3.Background information about the project and its purpose
This online questionnaire survey is about finding out more about the Post-Traumatic Stress Disorder (PTSD) after Childbirth.

4.Who is taking part?
We hope that around 800 women who have **become mums for the first time** and have given birth **in the last year** will take part. We are asking women to complete the questionnaire whether or not they experienced a difficult labour or experienced negative emotions following childbirth. We are interested in the different experiences of a range of women.

5.What will I have to do?

If you decide to take part in this project you will be asked to fill in a questionnaire that will take about 30 minutes to complete. This can be done by pressing the "Next" button at the bottom of the previous page, which will take you to the questionnaire.

If you would prefer to complete a pen and paper version of the questionnaire, please contact the researcher (details below) who can post or email the questionnaires to you along with a stamped addressed envelope for free return of the completed questionnaire.

6.What happens to the information?

All the information you provide is private and confidential and you will remain anonymous. Only the research team consisting of Dr Jackie Blissett (supervisor), Dr Elizabeth Grunfeld (co-supervisor) and Fahdah Alhussainan (researcher-PhD student) will have access to the data you provide. The data will be kept for 10 years and will then be destroyed. The data we receive will be analysed and written up as a whole, for publication in scientific journals. No individual can be identified and no-one will know who participated in the study.

When you finish the questionnaire you will be given the option to leave your contact details if you wish to be contacted regarding further research participation or to enter the prize draw to win a £150 Amazon voucher. This is not compulsory, and the information you provide here, should you choose to, will not be linked to the data you have submitted. Any personal details provided by you, for the sole purpose of being contacted for further research, will be stored using a separate password- protected database, accessible only by the researchers, and will be immediately deleted after you have been contacted. We will not pass your details to any third party.

7.What are the possible benefits of taking part?

Although there are no immediate benefits, the project will help us to understand more about Post-Traumatic Stress Disorder (PTSD) after Childbirth. If you would like to find out about the results of this research once all the data has been collected and analysed, we can send you a summary of the results. To obtain a summary you would need to complete the relevant section at the end of the questionnaire.

8.Do I have to take part?

Taking part in this project is entirely voluntary. You do not have to take part and you are free to withdraw from the project (by exiting the questionnaire) at any time without giving a reason.

9.What if I have more questions or do not understand something?

Further information can be obtained from the researcher below. Please do not hesitate to contact:
Fahdah Alhussainan, Doctoral Researcher, School of Psychology at the University of Birmingham, e-mail:

10.What happens now if I decide to take part?

If you would like to take part, just press the "Next" button at the bottom of the previous page. After that the first questionnaire will appear. Please complete the questionnaires once only. We are very grateful for your time.

Thank you

For completing these questionnaires and for taking part in our research!

If taking part in this research has raised any concerns for you, you may like to contact one of the following sources of support:

You can ask your GP or Health visitor for advice if your feelings are causing you concern. You can also view these websites

1) Post-Traumatic stress Disorder after Childbirth

http://www.angelfire.com/moon2/jkluchar1995/

2) The Birth Trauma Association

http://www.birthtraumaassociation.org.uk/what_is_trauma.htm

For information and support for parenting, you may wish to contact Parent line, a charity providing help and support for anyone caring for children.

www.parentlineplus.org.uk

If you have any further questions please don't hesitate to contact the researcher on this project Eabdah Alhussainan, Doctoral Researcher School of Psychology University of Birmingham Edgbaston B15 2TT E-mail [redacted]

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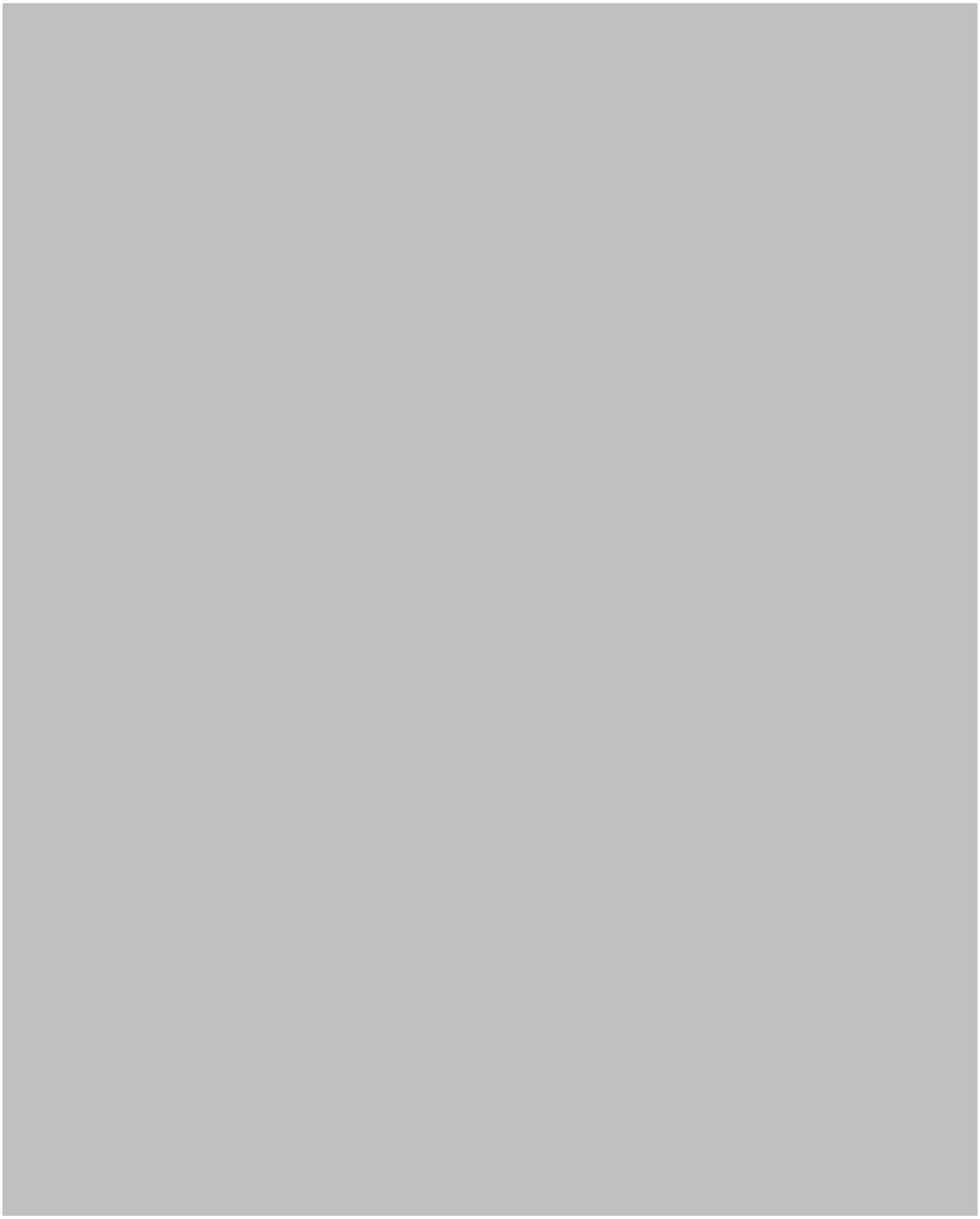
APPENDIX A-6: FOLLOW UP STUDY ETHIC APPROVAL



Participant Information Sheet

Changes in Mothers' Birth Experiences and Feelings

1.Background information about the project and its purpose

This online questionnaire survey is about finding out more about changes in women's symptoms of Post-Traumatic Stress Disorder (PTSD) after childbirth and their feelings towards their baby/toddler at least 1 year after childbirth.

2.Who is taking part?

Only women who have previously participated in the first part of this project are eligible for this part of the project. We are asking you to complete the questionnaires whether or not you experienced a difficult labour or experienced negative emotions following childbirth. We are interested in the different experiences of a range of women.

3.What will I have to do?

If you decide to take part in this project, please enter **THE ID NUMBER WE HAVE SENT YOU** in the questionnaire, so that we can link your previous response with the new one. You will be asked to fill in a questionnaire and write about your birth experience. The questionnaire will take about 5-7 minutes to complete, and writing about your birth experience could take another 15 minutes, although this depends on how much you choose to write.

If you would prefer to complete a pen and paper version of the questionnaire, please contact the researcher (details below) who can post or email the questionnaires to you along with a stamped addressed envelope for free return of the completed questionnaire.

4.What happens to the information?

All the information you provide is private and confidential and you will remain anonymous. Only the research team consisting of Dr Jackie Blissett (supervisor), Dr Elizabeth Grunfeld (co-supervisor) and Fahdah Alhussainan (researcher-PhD student) will have access to the data you provide.

The data will be kept for 10 years and will then be destroyed. The data we receive will be analysed and written up as a whole, for publication in scientific journals. No individual can be identified and no-one will know who participated in the study. It is important that you know that in the section where you are asked to write about your experiences, whilst everything you write will remain strictly confidential, we may use anonymised quotes from what you write to illustrate women's feelings about birth, in academic publications. We will ensure no identifying information about you or your child is included in such publications.

5.What are the possible benefits of taking part?

Although there are no immediate benefits to you, the project will help us to understand more about symptoms of Post-Traumatic Stress Disorder (PTSD) after Childbirth. If you would like to find out about the results of this research once all the data has been collected and analysed, we can send you a summary of the results. To obtain a summary you would need to complete the relevant section at the end of the questionnaire.

6. Do I have to take part?

Taking part in this project is entirely voluntary. You do not have to take part and you are free to withdraw from the project (by exiting the questionnaire) at any time without giving a reason.

7.What if I have more questions or do not understand something?

Further information can be obtained from the researcher below. Please do not hesitate to contact:

Fahdah Alhussainan, Doctoral Researcher, School of Psychology at the University of Birmingham, e-mail:

8.What happens now if I decide to take part?

If you would like to take part, just press the "Next" button at the bottom of the previous page. After that the first questionnaire will appear. Please complete the questionnaires once only. We are very grateful for your time.

- Your final task is to write for 15 minutes about your deepest thoughts and feelings about your first birth experience. In your writing, try to let yourself go and to write continuously about your emotions and thoughts related to the birth. You can write about any positive or negative thoughts, feelings and experiences. You can also write about how your birth experience affects you now, perhaps in your relationship with your child or partner. The primary task, however, is for you to reflect on your most basic thoughts and emotions about your first birth experience.

NB. Participants will be able to click to 'Skip this section' OR to proceed to a free text box in which they can type.

The Role of Attachment in the Development of Post-Traumatic Stress Disorder (PTSD) after Childbirth

Dear mothers,

You are invited to take part in a research project if you have become **a first time mum in the last year and you have your baby with you**. Before you decide whether or not you would like to participate, it is important to understand what the research involves. During this study, you will be asked to complete a set of questionnaires about your labour. This research will help us to understand responses to childbirth (including Post-Traumatic Stress Disorder (PTSD) and the impact of this will enable us to better structure our future interventions. Taking part in this project is voluntary and if you would like you have a chance to win a **£150 Amazon voucher** by entering a prize draw. You do not have to take part and you can withdraw from the project at any time without giving a reason.

If you need more information please read the information sheet.

APPENDIX A-8: STUDY 2 DEMOGRAPHICS QUESTIONNAIRE

	Section A **Please complete or choose the appropriate answer:**
1	Your Date of Birth (DD/MM/YYYY)
2	The highest level of education you have completed - Some high school - High school graduate - Some college - Trade/technical/vocational training - College graduate - Some postgraduate work - Post graduate degree - Other:
3	Your marital status (when you gave birth) - Single. - Married - Domestic Partnership - Widowed - Divorced - Separated
4	Occupational group (when you gave birth) -Unemployed -Employed full time -Employed part time -Self-employed -Student -Retired -Homemaker -Other: ……..…
5	Your ethnic group - British white background - Mixed / Multiple ethnic groups (White and Black Caribbean, White and Black African, White and Asian) - Asian / Asian British (Indian – Pakistani – Bangladeshi – Chinese) - Black / African / Caribbean / Black British - Arab - Other ethnic group (Any other ethnic group, please describe …….……..)
6	Your total annual household income -Under £15,000 -£15,000-£30,000 -£30,000-£45,000 -£45,000-£60,000 -£60,000-£75,000 -£75,000+
7	Your place of birth -UK. - Other: …… Please specify if it is not Uk.
8	How long have you lived in Uk? - less of 1 year -1-4 years - 5-9 years -10-19 years -20-29 years - More than 30 years

9	Specify the region in which you live (your post code in the longest period)
10	Your religious preference - Christian - Muslim - Protestant - Catholic - Orthodox - Jewish - Buddhist - Sikh - Hindu - No religion - Other religion ……. (please specify)
11	Delivery type - Normal vaginal delivery. Please specify: - natural contraction - induce contraction - Assisted delivery - Caesarean section - Other: …….
12	Using pain relievers during childbirth - Nothing -Hydrotherapy (being in water) -Gas and air (Entonox) - Pethidine injections -Epidural anaesthesia -Other: ……
13	How many months have passed since the birth? -Less than one month. - 1 to less than 3 months. - 3 to less than 6 months. - 6 to less than 9 months. - 9 to 12 months.
14	Have you ever experienced an abortion? - No -Yes. How many times? ……
15	Have you ever experienced any psychological difficulty? - No - Yes (If yes please specify what the problem was and how many times this problem has occurred). ……

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Changes Mothers' birth experiences and feelings

Dear Mothers,

You are invited to take part in a follow up research project that you participated in last year. In that study you kindly completed questionnaires about your birth experience and feelings, and gave us your contact details so that we could ask you if you wish to take part in another study. Before you decide whether or not you would like to participate in this follow-up, it is important to understand what the research involves. During this study, you will be asked to complete a set of questionnaires and write about your experiences of birth and how you were feeling. This research will help us to understand women's responses to childbirth, particularly why some women develop symptoms of Post-Traumatic Stress Disorder (PTSD) and how these might change with time. This will enable us to better structure our future interventions. Taking part in this project is voluntary and if you would like you have a chance to **win a £10 Amazon** voucher by entering a prize draw. You do not have to take part and you can withdraw from the project at any time without giving a reason.

APPENDIX A-16: FOLLOW UP STUDY DEMOGRAPHICS QUESTIONNAIRE

Please visit the link below for more information:

Information sheet (A LINK TO THE INFO SHEET WILL BE PLACED HERE).

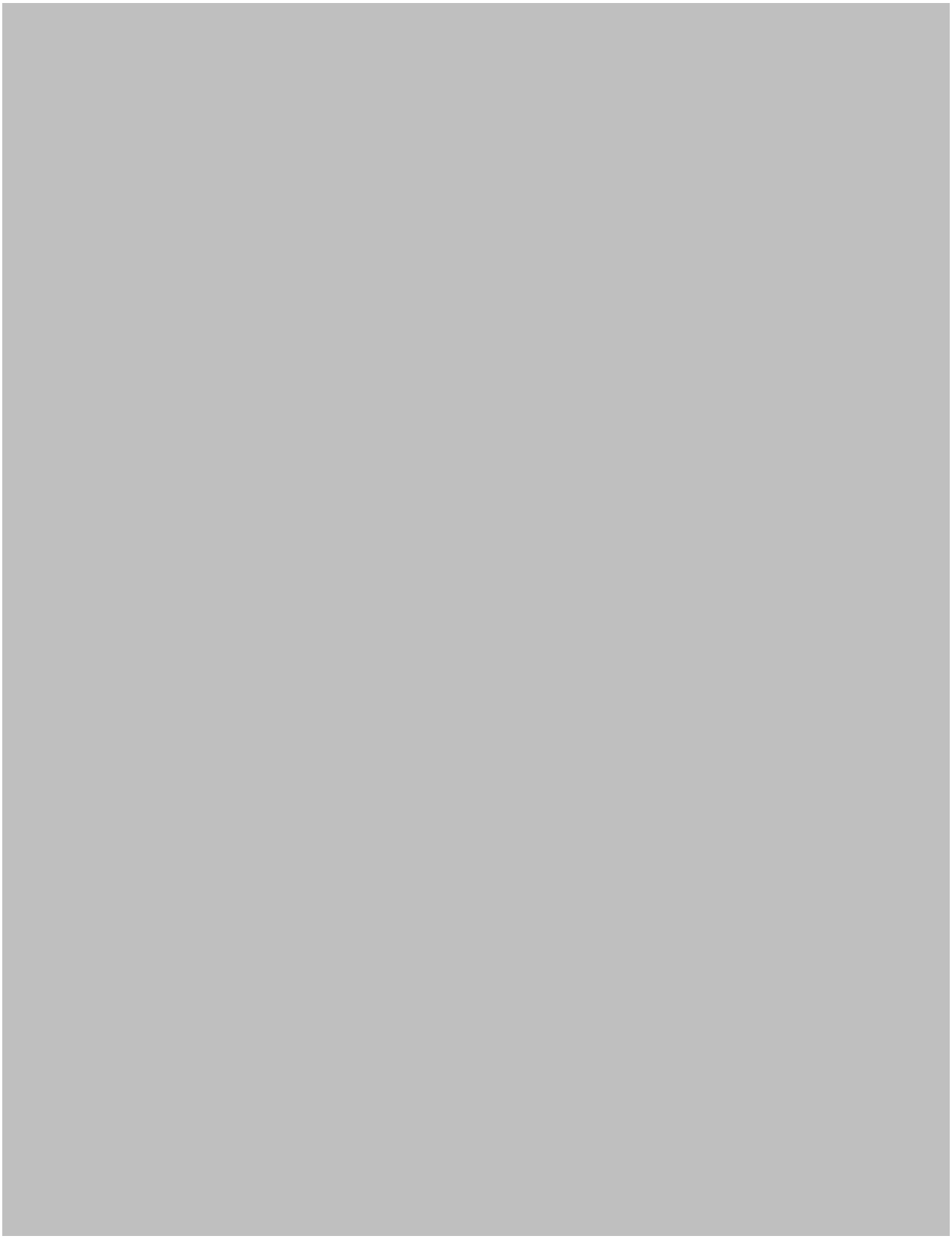
Consent form:

- ☐ The purpose of the study and what I have to do has been explained to me.
- ☐ I understand who to contact and how to contact them if I have questions about the study or if I wish to withdraw.
- ☐ I give my consent to participate in this study.

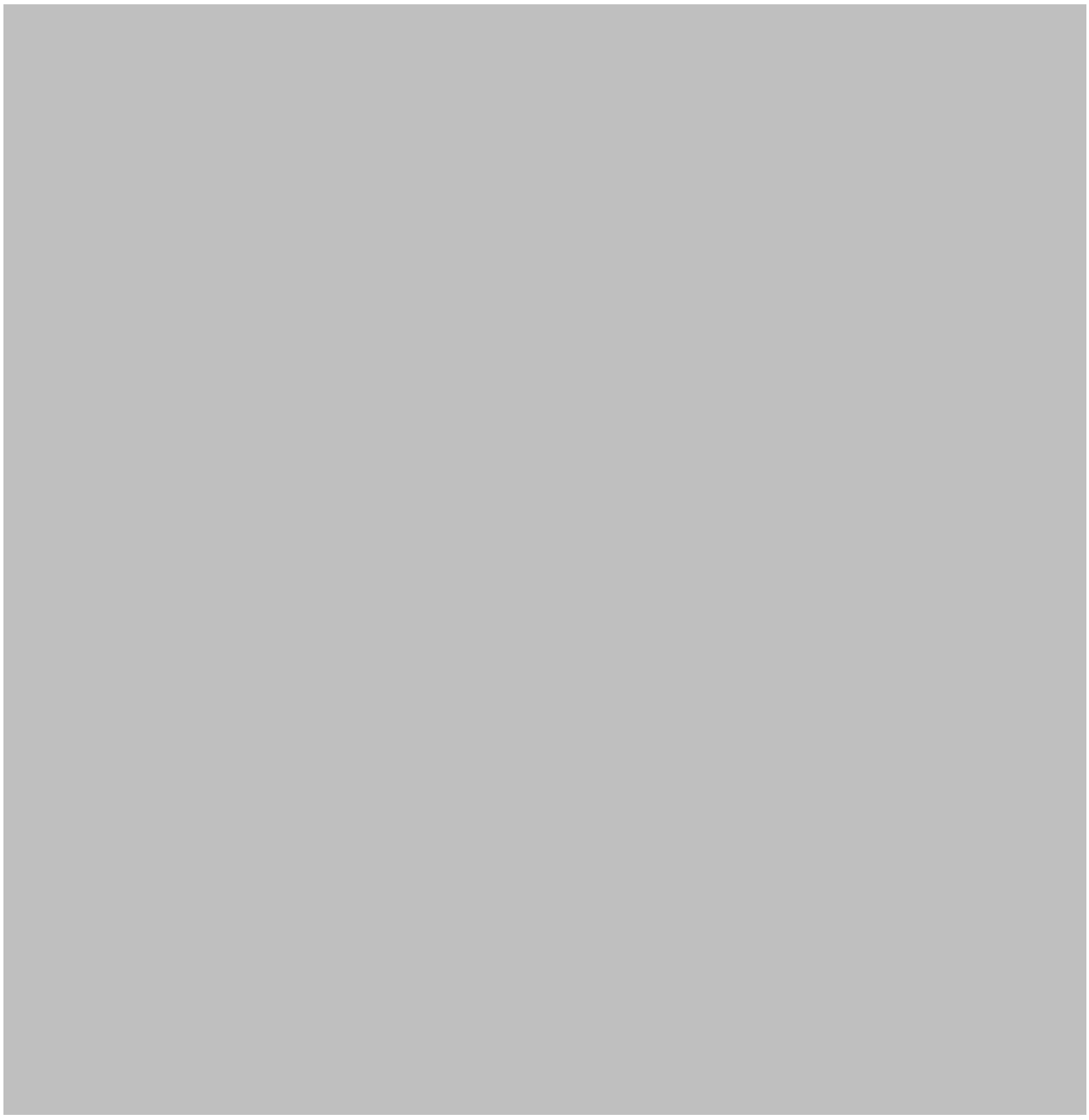
If you decide to take part please press the "Next" button at the bottom of this page.

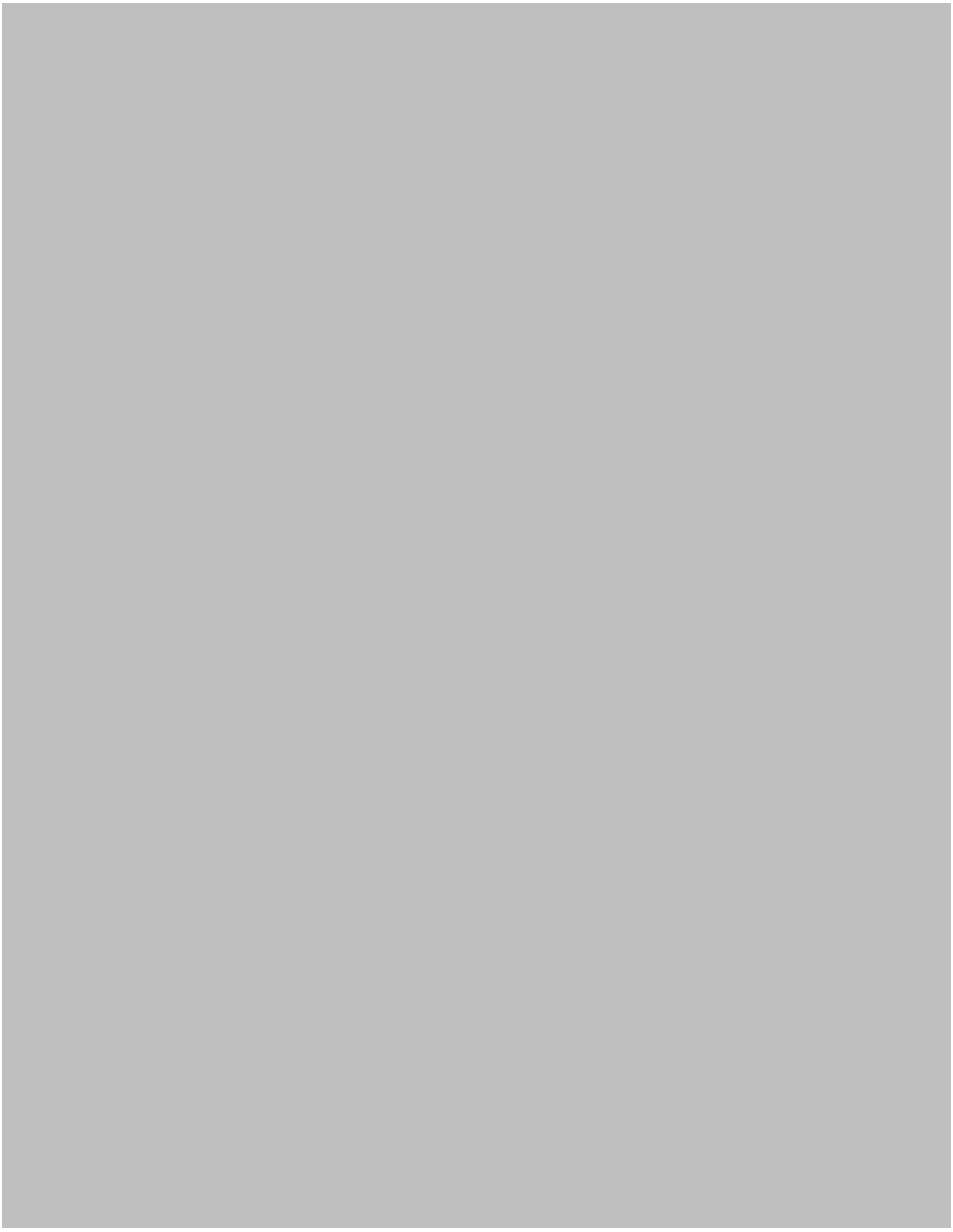
Section A **Please complete or choose the appropriate answer:**	
1	Please enter your ID here ( ), which has been sent to you with the study link.
2	How old is your first baby? (years , months)
3	Are you pregnant? - No -Yes If yes, how many weeks ……
4	Have you had more children after your first one? - No -Yes If yes, how old is He/ she? ……

APPENDIX A-9: PDS SCALE



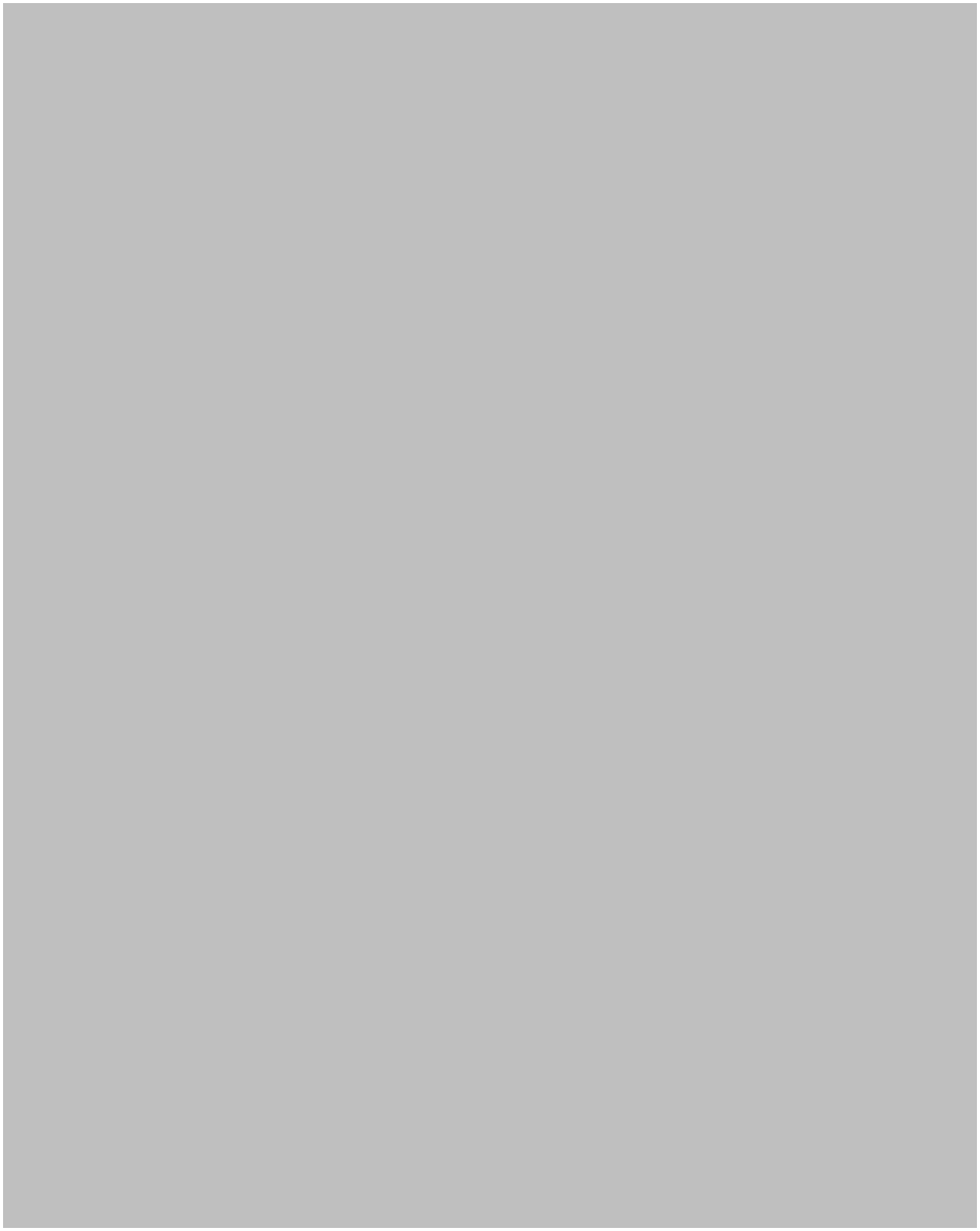
APPENDIX A-9: PDS SCALE



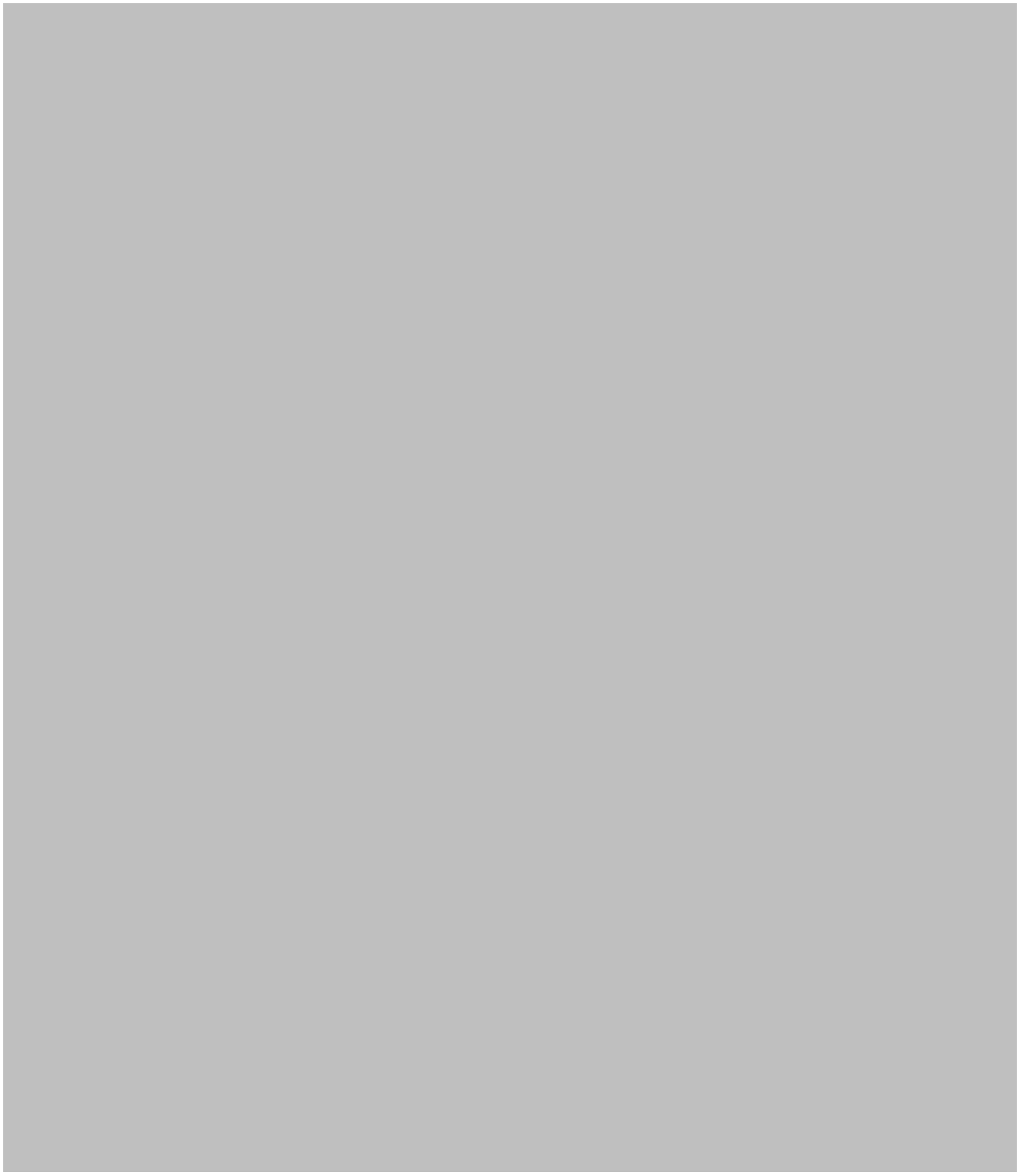


APPENDIX A-10: WAS SCALE

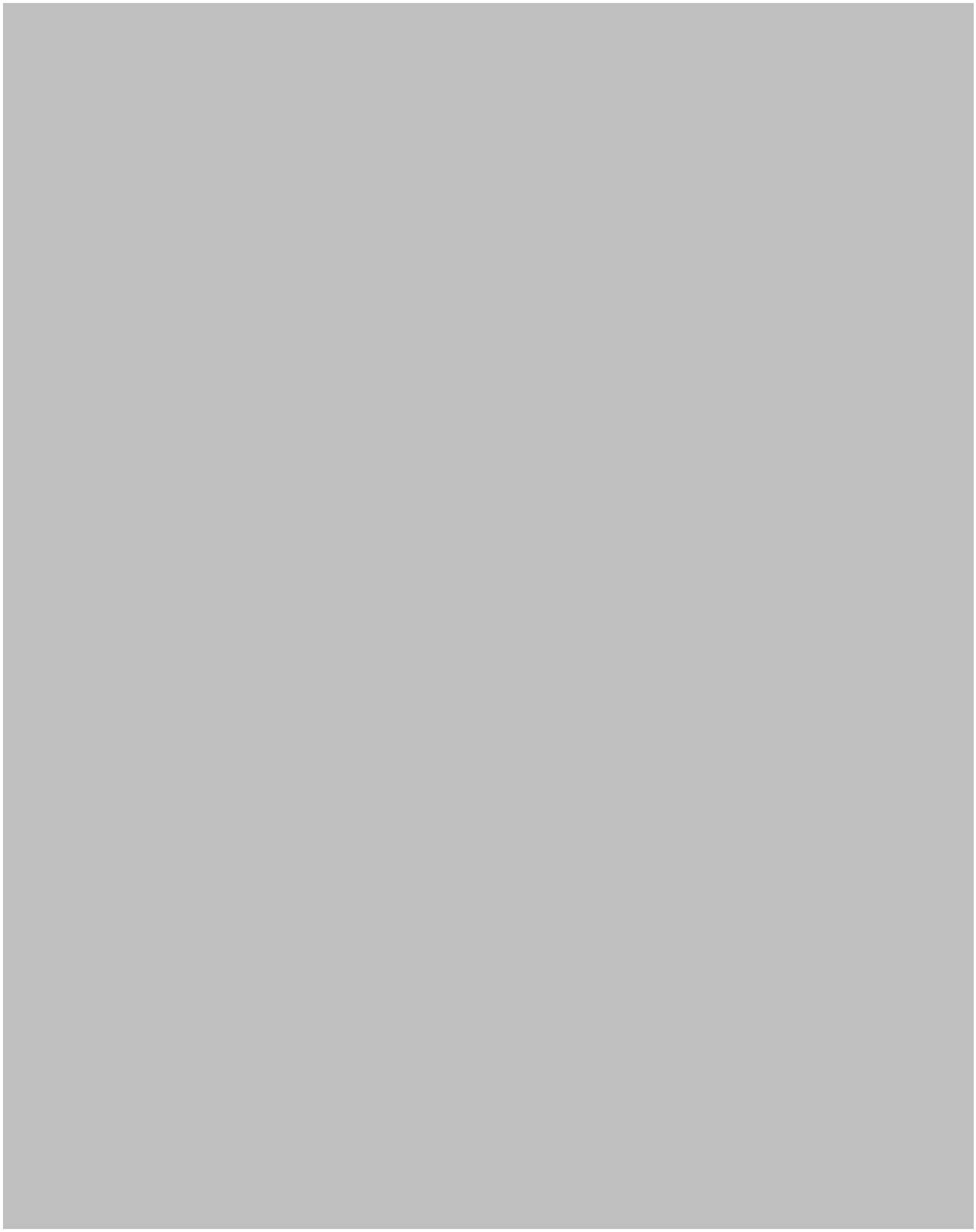
APPENDIX A-11: MMRI SCALE



APPENDIX A-12: MSPSS SCALE

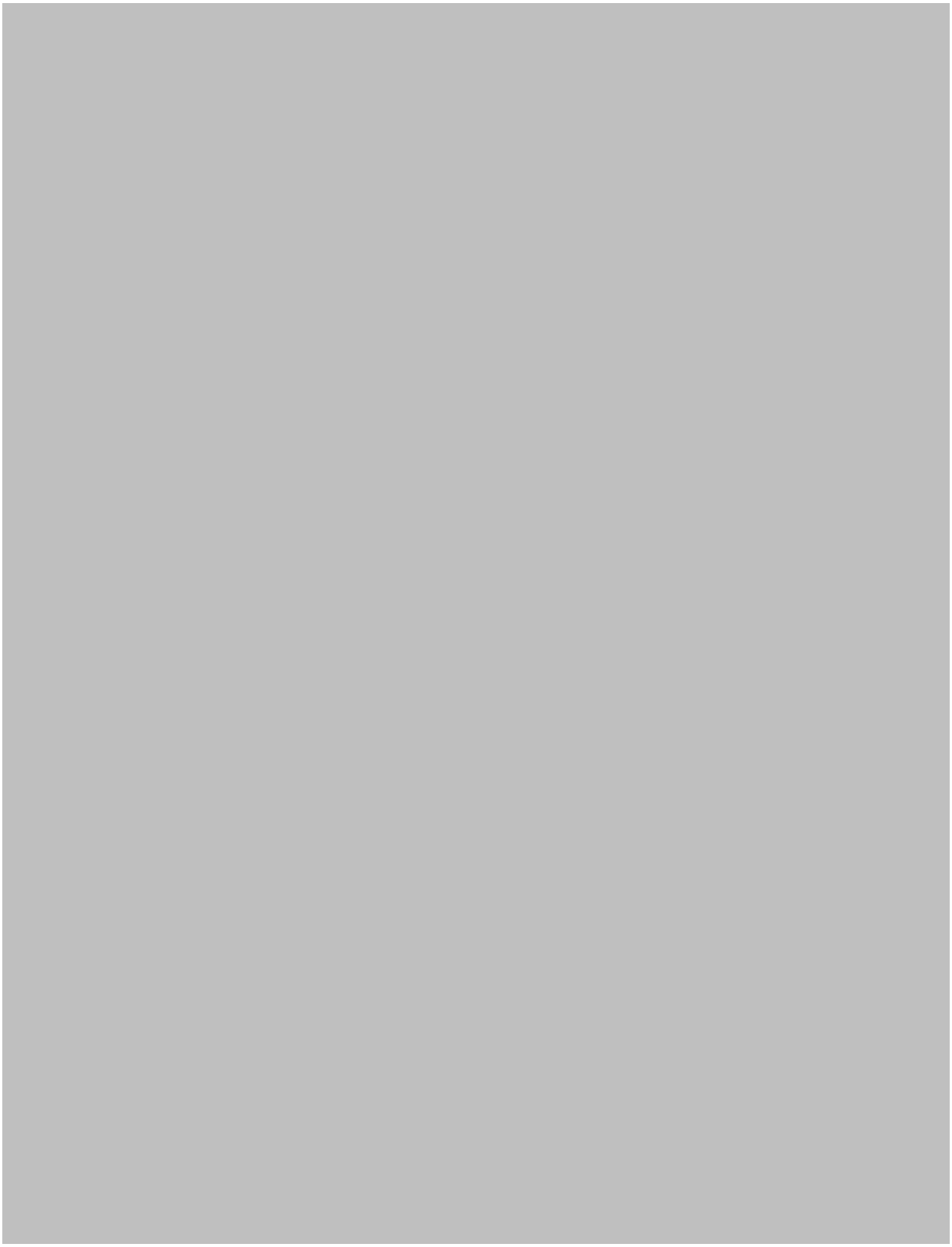


APPENDIX A-13: RAAS SCALE



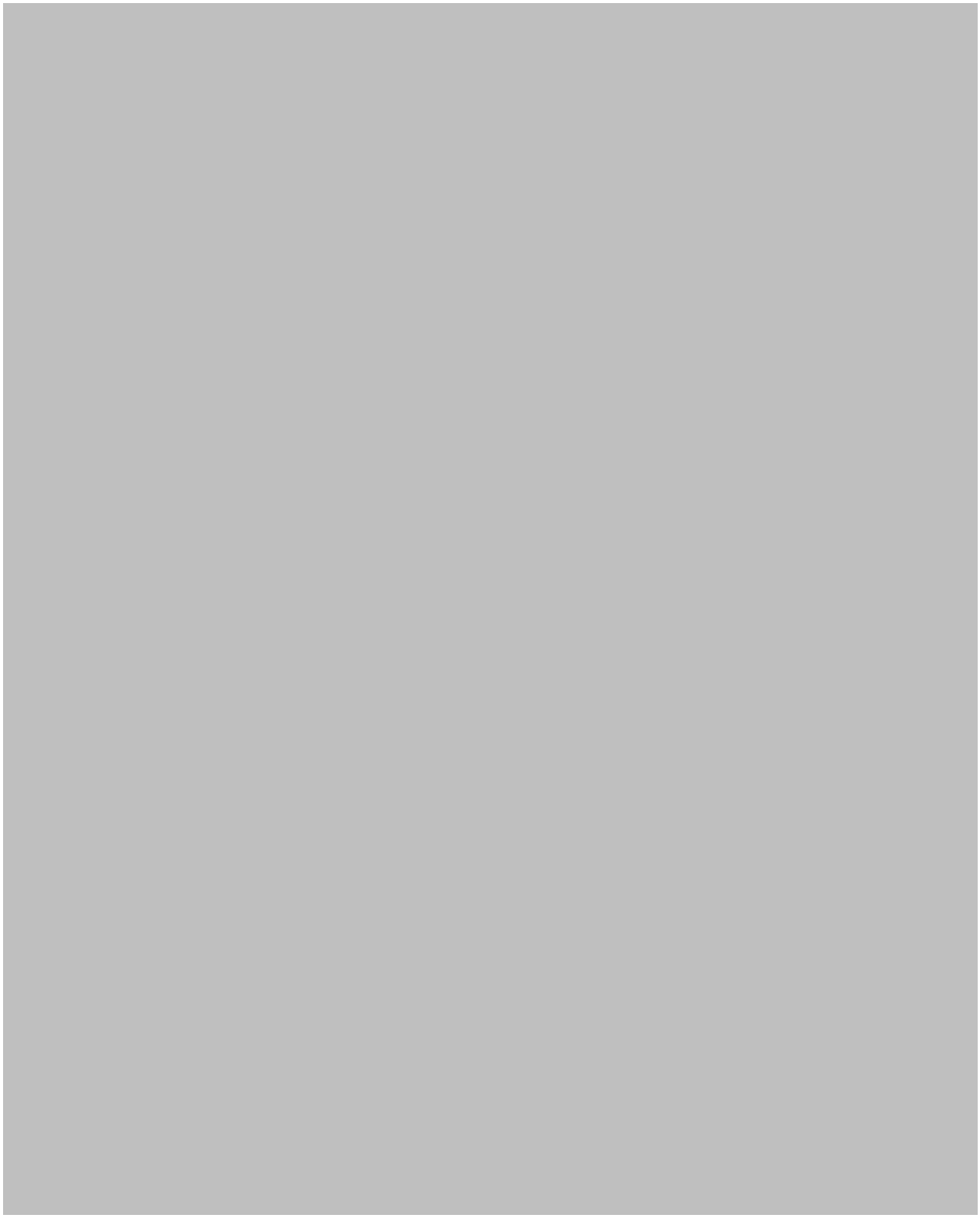
APPENDIX A-13: RAAS SCALE

APPENDIX A-14: MPAS SCALE

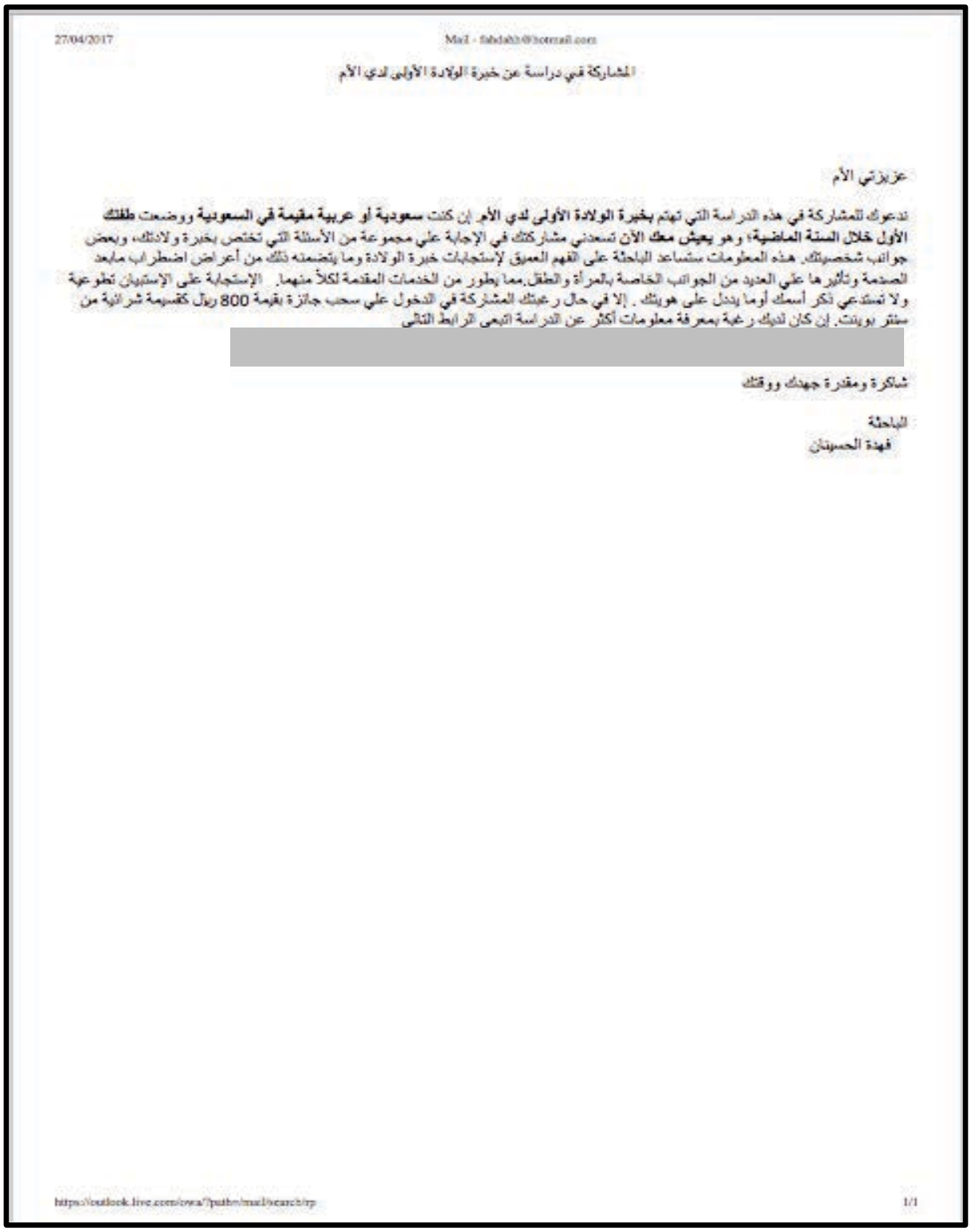


APPENDIX A-14: MPAS SCALE

APPENDIX A-15: HADS SCALE



APPENDIX B-3: STUDY 2 INFORMATION SHEET (ARABIC)



27/04/2017 Mail - fahdah1@hotmail.com

المشاركة في دراسة عن خبرة الولادة الأولى لدي الأم

عزيزتي الأم

ندعوك للمشاركة في هذه الدراسة التي تهتم بخبرة الولادة الأولى لدي الأم إن كنت سعودية أو عربية مقيمة في السعودية ووضعت طفلك الأول خلال السنة الماضية؛ وهو يعيش معك الآن تسعدني مشاركتك في الإجابة على مجموعة من الأسئلة التي تختص بخبرة ولادتك، وبعض جوانب شخصيتك. هذه المعلومات ستساعد الباحثة على الفهم العميق لإستجابات خبرة الولادة وما يتضمنه ذلك من أعراض اضطراب مابعد الصدمة وتأثيرها على العديد من الجوانب الخاصة بالمرأة والطفل.مما يطور من الخدمات المقدمة لكلاً منهما. الإستجابة على الإستبيان تطوعية ولا تستدعي ذكر أسمك أوما يدل على هويتك . إلا في حال رغبتك المشاركة في الدخول علي سحب جائزة بقيمة 800 ريال كقسيمة شرائية من ستور بوينت. إن كان لديك رغبة بمعرفة معلومات أكثر عن الدراسة اتبعي الرابط التالي

[redacted]

شاكرة ومقدرة جهدك ووقتك

الباحثة
فهدة الحسيدان

https://outlook.live.com/owa/?path=/mail/search/rp 1/1

APPENDIX B-3: STUDY 2 INFORMATION SHEET (ARABIC)

1- هدف الدراسة

تهدف هذه الدراسة الى التعرف على نسبة شيوع اضطراب مابعد الصدمة اللاحق للولادة لدي المرأة السعودية أو العربية المقيمة في السعودية.

2- المشاركات

تطمح الباحثة للحصول على400 إمراة تعرضن لخبرة الولادة **لأول مرة** خلال **السنة الماضية** سواء كانت خبرة الولادة معقدة أو ميسرة

3- ماذي يتوجب عليك فعله إن رغبت بالمشاركة؟

إن كنت **سعودية أو عربية مقيمة في السعودية**، و تعرضت **لخبرة الولادة لأول مرة**، خلال **السنة الماضية**

تسعدنا مشاركتك بالإجابة على أسئلة الإستبيان ال 56 والتي تستغرق ما يقارب 35 دقيقه من خلال اختيار التالي في الصفحة السابقة

4- السرية والخصوصية

كل المعلومات التي ستقدم ستكون سرية وبدون أسم. فقط فريق البحث المكون من د. جاكلين بلومست و أ. فهدة الحسينان لهن الحق في رؤية المعلومات

عند الإنتهاء من الإجابة على الأسئلة ستجدين خيار (ليس الزاميا) لترك طريقة للتواصل معك إن رغبت في المشاركة في بحوث مستقبلية أو الدخول في سحب على قسيمة ستار بوينت الشرائية بقيمة 800 ريال. ويكون ذلك عن طريق ترك رقم هاتفك والايميل وترك اسمك او اسماً مستعاراً. مع العلم أن هذه المعلومات المقدمة لن ترتبط بإجابتك على الإستبيان التي ستضل مجهولة الهوية

5- ماهي الفائدة من المشاركة

مشاركتك في الاستجابة على هذا الاستبيان خدمة للمجتمع حيث أن نسبة الإصابة باضطراب مابعد الصدمة التالي للولادة غير معلومة في المجتمع العربي وبالأخص السعودي.والحصول على المعلومات من مجموعة من النساء يساعدعلي التوصل لتصور عن نسبة الانتشار في مجتمعنا. بالإضافة إلى فرصة حصولك على قسيمة شرائية بقيمة 800 ريال

6- ماذا اذا كانت بعض الأسئلة غير واضحة وكنت في حاجة للإستفسار عن أمرما؟

.لا تتردي بطلب معلومات إضافية إن دعت الحاجة لذلك من خلال مراسلة الباحثة

أ. فهدة الحسينان

البريد اليكتروني:

إذا رغبت بالمشاركة ما عليك سوى اختيار التالي في نهاية الصفحة السابقة وستظهر الأسئلة تباعاً لك.

شاكرة ومقدرة وقتك وجهدك.

APPENDIX B-4: FOLLOW UP STUDY INFORMATION SHEET (ARABIC)

معلومات الدراسة

عنوان الدراسة:

التغير في أعراض اضطراب الصدمة بعد الولادة عبر الزمن.

عزيزتي الأم:

بداية نتوجه بالشكر لك لمشاركتك في دراستنا السابقة (قبل عام تقريبا) التي كانت تبحث في أعراض إضطراب الصدمة بعد الولادة لدى الأمهات الجديدات. وقد قمت مشكورة بالإجابة على استبيان عن خبرة الولادة لديك وما تشمله من أفكار ومشاعرحولك وحول طفلك. وتكرمت مشكورة بإعطائنا معلوماتك للسحب علي الجائزة و للتواصل معك في حال وجود دراسة أخرى، ورغبت بالمشاركة بها. نحن الآن بصدد القيام بدراسة تتبعية للدراسة السابقة، لنقف علي التغير الحاصل في الأعراض والمشاعرالمصاحبة لخبرة الولادة عبر الزمن. بغض النظر عن كون خبرة الولادة لديك كانت جيدة أو غير ذلك.

في هذه الدراسة نطلب منك الإجابة علي استبيان قصير يشمل علي أسئلة تخص خبرة ولادتك وكيف تقيمينها الآن، أسئلة بخصوص مزاجك وصحتك النفسية، وعلاقتك مع طفلك الآن. بالإضافة الي إعطائك المجال للكتابة عن خبرتك من منظورك الشخصي. المشاركة في هذه الدراسة تطوعية وتعتمد علي رغبتك في دعم هذا البحث الذي نحن في حاجة لإكمالة لتتضح لنا آلية تغير الأعراض عبر الزمن ومن ثم تقديم المساندة المناسبة للأمهات الجديدات.

في هذا البحث أيضا هناك سحب علي 5 قسائم شرائية بقيمة 100 ريال من سنتر بوينت. نحن نقدر تعاونك ودعمك، إن رغبت في معلومات إضافية عن الدراسة بإمكانك ضغط الرابط التالي:

وإذا رغبت بالمشاركة، فقط عليك اختيار التالي نهاية الصفحة.

معلومات عن الدراسة وأهدافها:

تهدف الدراسة للتعرف علي التغيرات في أعراض إضطراب الصدمة لدي الأم بعد الولادة وارتباطه بالعلاقة مع الطفل بعد مرور سنة أو أكثر علي الولادة.

الفئة المستهدفة:

APPENDIX B-4: FOLLOW UP STUDY INFORMATION SHEET (ARABIC)

فقط الأمهات اللاتي شاركن مسبقاً في الجزء الأول من هذا البحث قبل عام من الآن، بغض النظر عن نوعية خبرة الولادة التي مررن بها.

ماذا يتوجب عليك فعله إن رغبت بالمشاركة:

اذا رغبت بالمشاركة ما عليك سواء الضغط علي ايقونة التالي في الصفحة السابقة، ومن ثم كتابة رمز الهوية الذي أُرسل لك عبر الإيميل مع رابط الدراسة في المكان المخصص لذلك، لكي نستطيع ربط استجاباتك السابقة مع الاستجابات الجديدة. الاستبيان لن يستغرق أكثر من سبع دقائق، والكتابة عن خبرة الولادة كذلك.

ماذا سيحصل للمعلومات التي ستدلي بها:

كل المعلومات التي ستدلي بها ستكون سرية. فقط فريق البحث المكون من د. جاكلين بليست، وأ. فهدة الحسينان يستطعن رؤية المعلومات.

ماهي الفائدة من المشاركة:

مشاركتك في هذا الاستبيان خدمة للمجتمع، حيث أن نسبة الإصابة بإضطراب الصدمة مابعد الولادة غير معلومة في المجتمع العربي وبالأخص السعودي. والحصول علي المعلومات من مجموعة من النساء يساعد على التوصل لتصور عن نسبة الانتشار في مجتمعنا. بالإضافة إلى فرصة حصولك على قسيمة شرائية بقيمة 100 ريال من سنتر بوينت.

ماذا اذا كانت بعض الأسئلة غير واضحة وكنت في حاجة للإستفسار عن أمرما:

لا تترددي يطلب معلومات إضافية إن دعت الحاجة لذلك من خلال مراسلة الباحثة أ.فهدة الحسينان البريد الإلكتروني: [redacted]

اذا رغبت بالمشاركة ماعليك سوى اختيار التالي في نهاية الصفحة السابقة وستظهر الأسئلة تباعاً لك

شاكرة ومقدرة وقتك وجهدك

الختام،، شكراً لك لمشاركتك في هذه الدراسة وإتمام الإستبيان

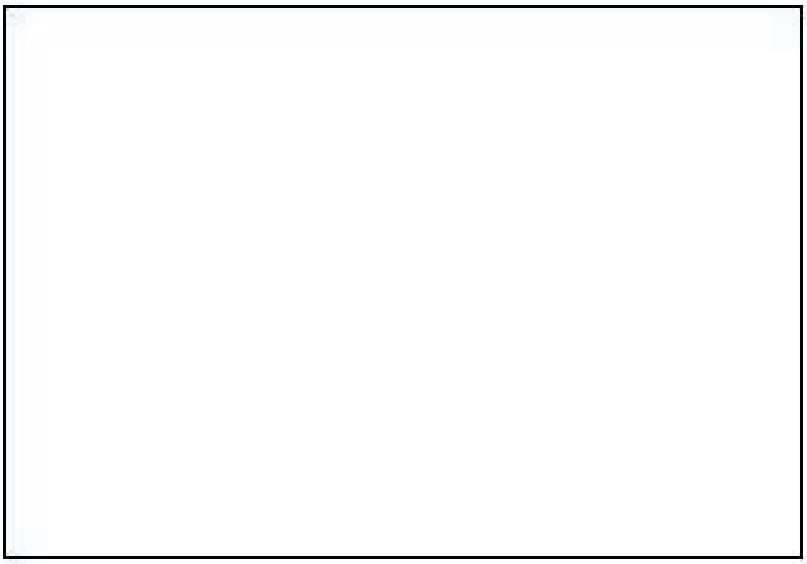
APPENDIX B-5: STUDY 2 OPEN RESPONSE (ARABIC)

في هذا الجزء، نريد منك أن تكتب لنا عن خبرة الولادة الأولى، وكيف كان شعورك. نحن هنا نحاول تذكر تلك الخبرة والكتب ما ترتبط بها من أفكار وتوقعات ومشاعر خلال الولادة وبعدها.

- ماذا كانت توقعاتك عن الولادة قبل الدخول للمستشفى و الولادة؟
- كيف كانت خبرة الولادة الفعلية بالنسبة لك من ناحية مشاعرك، الألم، المساندة من المحيط (المستشفى، الزوج، الأهل)
- تحققين ما هي الأسباب التي جعلت خبرة الولادة لديك كما كانت سواء خبرة جيدة أو غير ذلك.
- كيف أثرت خبرة الولادة عليك على حياتك، علاقتك مع طفلك.
- كيف تشعرين الآن حيال خبرة الولادة لديك.
- هل هناك مكررين إضافة؟

هل لديك الرغبة بالدخول في السحب على الجائزة؟

"تذكرة لك ومقدرة وطفلك وجهاتك"



1

APPENDIX B-6: STUDY 2 DEMOGRAPHICS QUESTIONNAIRE (ARABIC)

دور التعلق بالأخر في ظهور أعراض اضطراب الصدمةPTSD بعد الولادة لدى الأمهات في السعودية

عزيزتي الأم

ندعوك للمشاركة في هذه الدراسة التي تهتمبخبرة **الولادة الأولي** لدي الأم.

إن كنت سعودية، أو عربية مقيمة في السعودية، ووضعت طفلك الأول خلال السنة الماضية،تسعدني مشاركتك في الإجابة على مجموعة من الأسئلة التي تختص بخبرة ولادتك، وبعض جوانب شخصيتك.

هذه المعلومات ستساعد الباحثة على الفهم العميق لإستجابات خبرة الولادة وما يتضمنه ذلك من أعراض اضطراب مابعد الصدمة وتأثيرها علي العديد من الجوانب الخاصة بالمرأة والطفل.مما يطور من الخدمات المقدمة لكلاً منهما

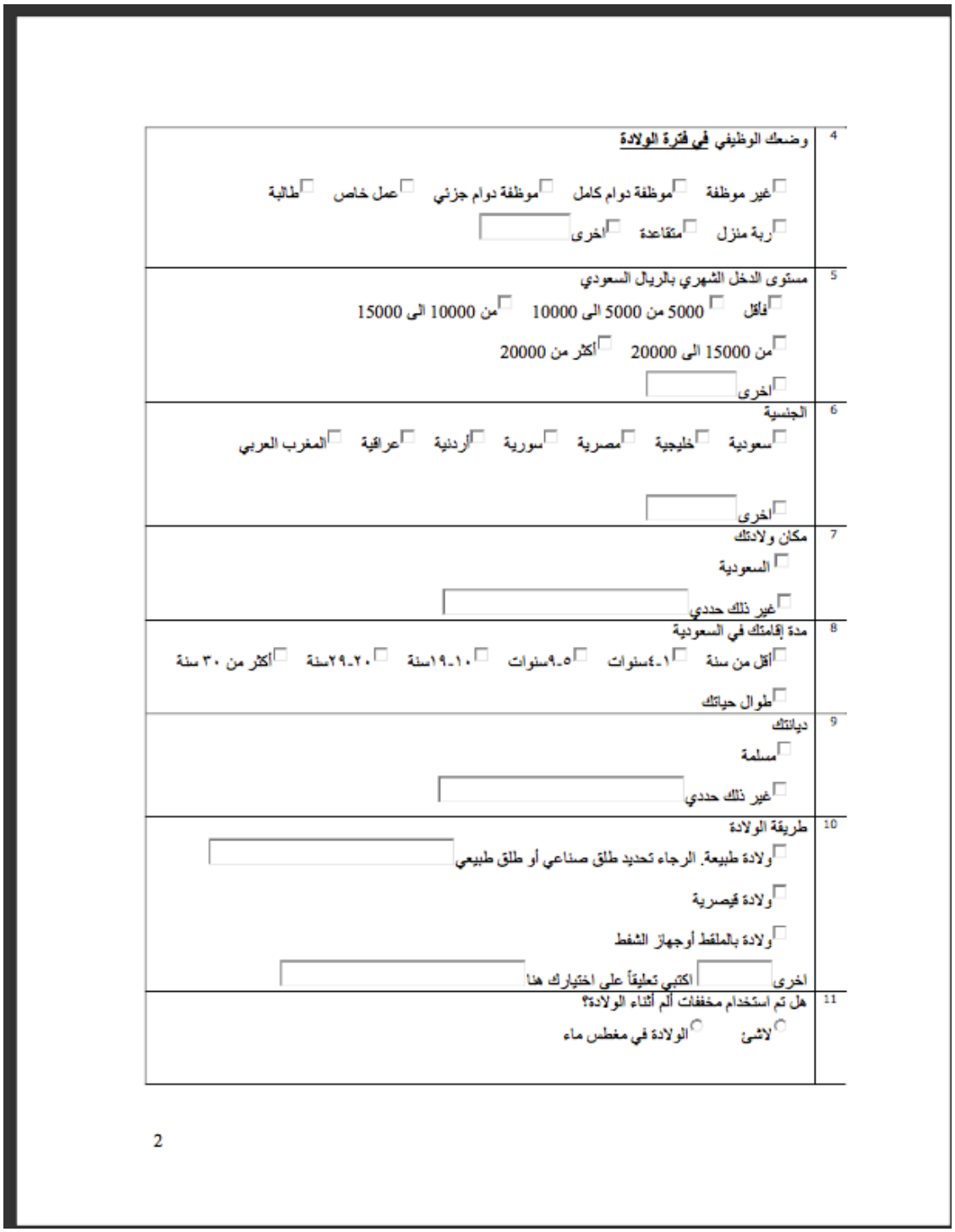
الإستجابة على الإستبيان تطوعية ولا تستدعي ذكر أسمك أوما يدل على هويتك. إلا في حال رغبتك المشاركة في الدخول علي سحب جائزة بقيمة 800 ريال كقسيمة شرائية من سنتر بوينت

إن كان لديك رغبة بمعرفة معلومات أكثرعن الدراسة يمكنك الإطلاع علي ورقة المعلومات الملحقة

	Section A الرجاء اختيار الإجابة المناسبة
1	**تاريخ ميلادك**
2	**المستوى التعليمي** ☐إبتدائي ☐متوسط ☐ثانوي ☐جامعي ☐ماجستير ☐دكتوراه ☐اخرى
3	وضعك الإجتماعي **عند ولادتك** ☐متزوجة ☐منفصلة دون طلاق ☐منفصلة وتم الطلاق بعد الولادة ☐منفصلة وتم الصلح بعد الولادة ☐أرمل ☐اخرى

1

APPENDIX B-6: STUDY 2 DEMOGRAPHICS QUESTIONNAIRE (ARABIC)



4	وضعك الوظيفي **في فترة الولادة** ☐غير موظفة ☐موظفة دوام كامل ☐موظفة دوام جزئي ☐عمل خاص ☐طالبة ☐ربة منزل ☐متقاعدة ☐اخرى
5	مستوى الدخل الشهري بالريال السعودي ☐اقل 5000 ☐من 5000 الى 10000 ☐من 10000 الى 15000 ☐من 15000 الى 20000 ☐أكثر من 20000 ☐اخرى
6	الجنسية ☐سعودية ☐خليجية ☐مصرية ☐سورية ☐أردنية ☐عراقية ☐المغرب العربي ☐اخرى
7	مكان ولادتك ☐السعودية ☐غير ذلك حددي
8	مدة إقامتك في السعودية ☐أقل من سنة ☐١-٤سنوات ☐٥-٩سنوات ☐١٠-١٩سنة ☐٢٠-٢٩سنة ☐أكثر من ٣٠ سنة ☐طوال حياتك
9	ديانتك ☐مسلمة ☐غير ذلك حددي
10	طريقة الولادة ☐ولادة طبيعة. الرجاء تحديد طلق صناعي أو طلق طبيعي ☐ولادة قيصرية ☐ولادة بالملقط أوجهاز الشفط اخرى اكتبي تعليقاً على اختيارك هنا
11	هل تم استخدام مخففات ألم أثناء الولادة؟ لاشئ الولادة في مغطس ماء

2

APPENDIX B-6: STUDY 2 DEMOGRAPHICS QUESTIONNAIRE (ARABIC)

	بنج عام متقطع إلى قصير المدى كمامة أكسجين بنج موضعي إبرة عضل تخدير الجافية ..إبرة الظهر اخرى
12	كم شهر مضى على ولادتك أقل من شهر من شهر الى أقل من ٣شهور من ٣شهور إلى أقل من ٦ شهور ٦شهور إلى أقل من ٩ شهور من ٩ شهور إلى ١٢ شهر
13	هل سبق لك الإجهاض؟ لا نعم. اذكري عدد المرات؟
14	هل سبق لك أن تعرضت لإضطراب نفسي أستدعي زيارة الطبيب؟ لا نعم. اذكري عدد المرات؟

3

APPENDIX B-7: FOLLOW UP STUDY DEMOGRAPHICS QUESTIONNAIRE

عزيزتي الأم:

بداية نتوجه بالشكر لك لمشاركتك في دراستنا السابقة (قبل عام تقريبا) التي كانت تبحث في أعراض

إضطراب الصدمة بعد الولادة لدى الأمهات الجديدات. وقد قمت مشكورة بالإجابة على استبيان عن خبرة الولادة لديك وما تشمله من أفكار ومشاعرحولك وحول طفلك. وتكرمت مشكورة بإعطائنا معلوماتك للسحب علي الجائزة و للتواصل معك في حال وجود دراسة أخرى، ورغبت بالمشاركة بها. نحن الآن بصدد القيام بدراسة تتبعية للدراسة السابقة، لنقف علي التغير الحاصل في الأعراض والمشاعرالمصاحبة لخبرة الولادة عبر الزمن. بغض النظر عن كون خبرة الولادة لديك كانت جيدة أو غير ذلك.

في هذه الدراسة نطلب منك الإجابة علي استبيان قصير يشتمل علي أسئلة تخص خبرة ولادتك وكيف تقيمينها الآن، أسئلة بخصوص مزاجك وصحتك النفسية، وعلاقتك مع طفلك الآن. بالإضافة الي إعطائك المجال للكتابة عن خبرتك من منظورك الشخصي. المشاركة في هذه الدراسة تطوعية وتعتمد علي رغبتك في دعم هذا البحث الذي نحن في حاجة لإكمالة لتتضح لنا آلية تغير الأعراض عبر الزمن ومن ثم تقديم المساندة المناسبة للأمهات الجديدات. في هذا البحث أيضا هناك سحب علي 5 قسائم شرائية بقيمة 100 ريال من سنتر بوينت. نحن نقدر تعاونك ودعمك، إن رغبت في معلومات إضافية عن الدراسة بإمكانك ضغط الرابط التالي:

وإذا رغبت بالمشاركة مباشرة، فقط عليك اختيار التالي نهاية الصفحة.

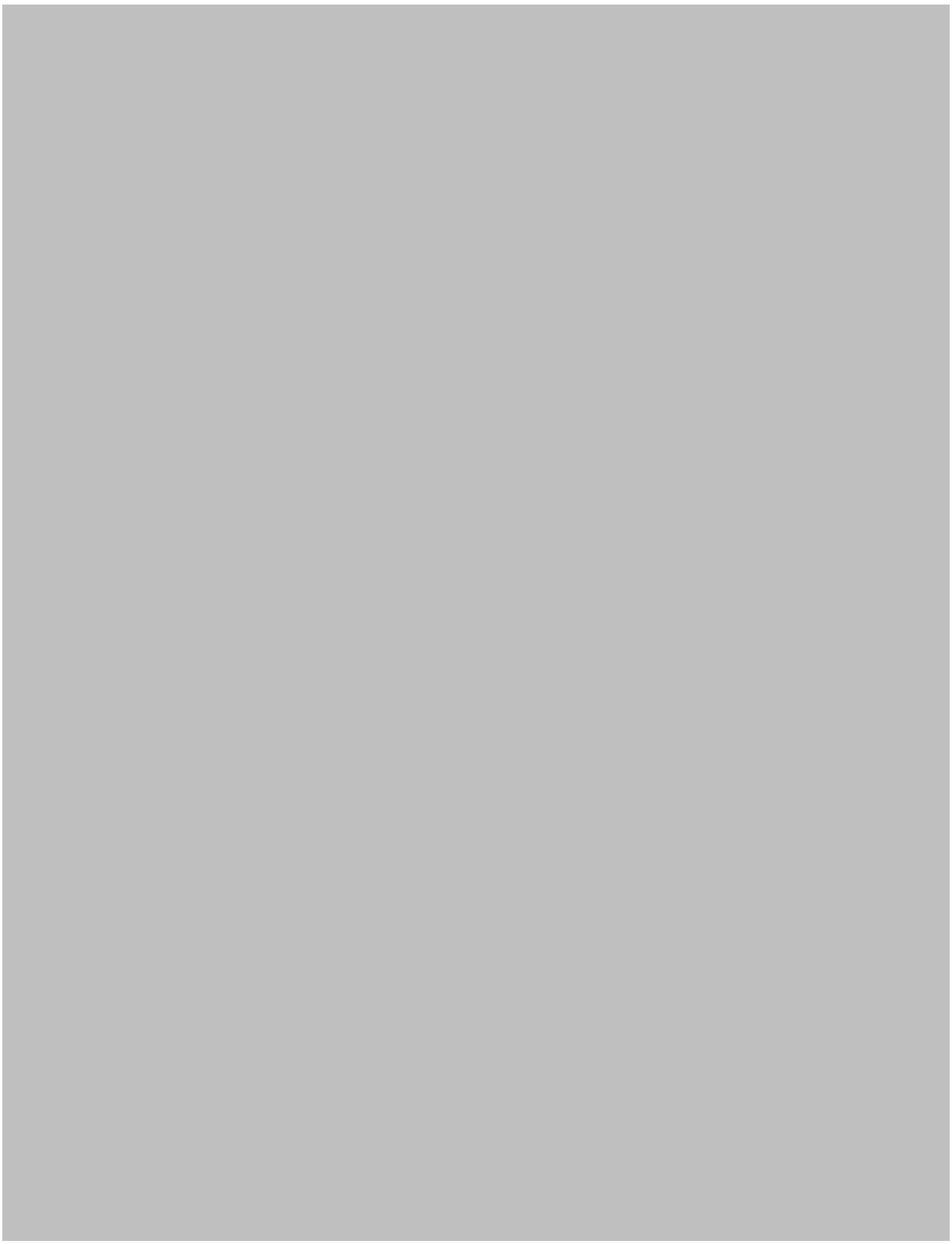
* الهدف من هذه الدراسة واضح بالنسبة لي---

APPENDIX B-7: FOLLOW UP STUDY DEMOGRAPHICS QUESTIONNAIRE

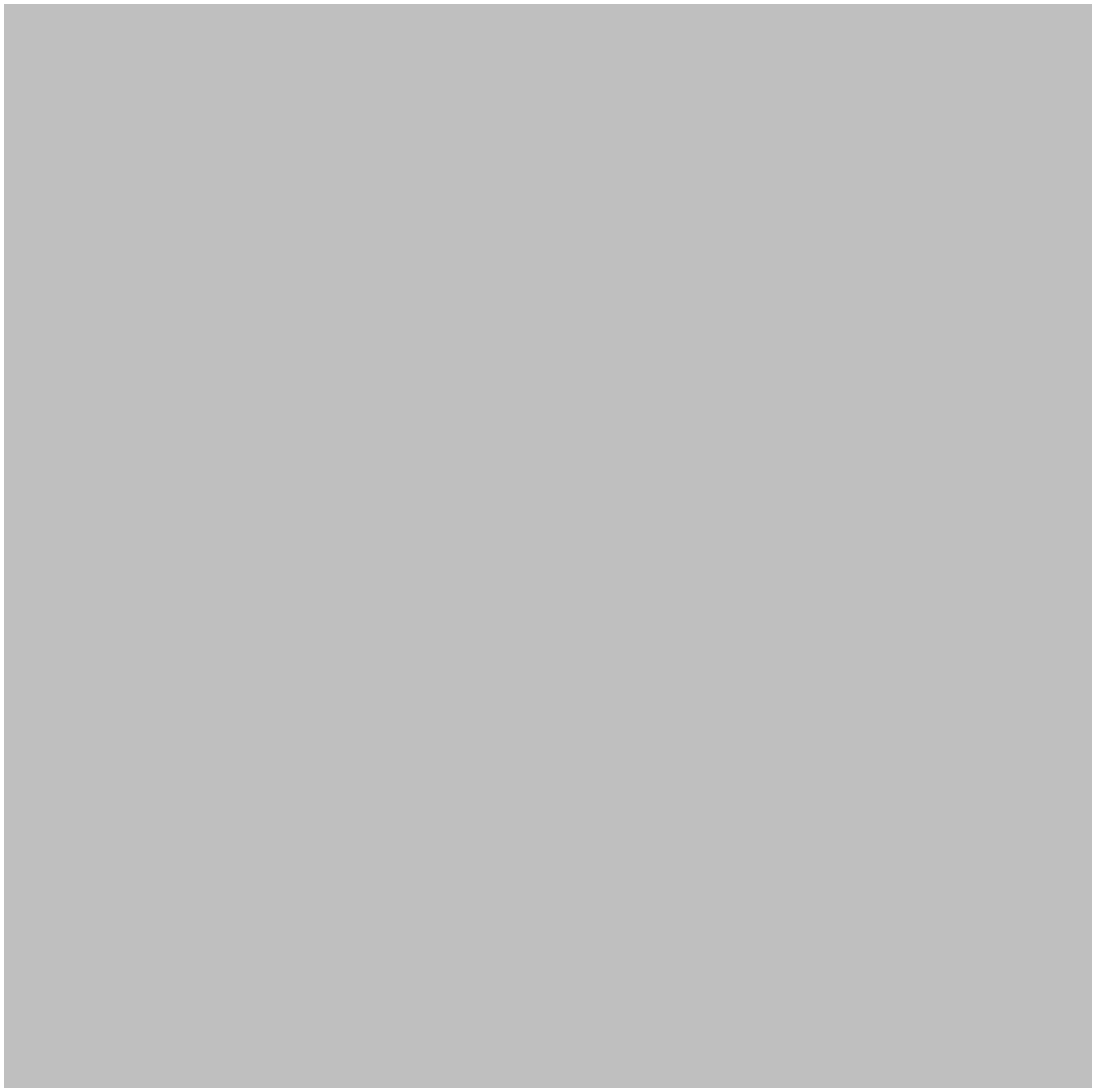
* في حالة وجود استفسار لدي حول الدراسة، أستطيع التواصل مع فريق البحث
* أنا أوافق علي المشاركة في هذه الدراسة

Section A الرجاء اختيار الإجابة المناسبة	
1	**رمز الهوية ( ) تم ارسالة مع رابط الدراسة**
2	**العمر الحالي لطفلك الأول (سنوات شهور)**
3	**هل أنت حامل حالياً؟ لا** **نعم كم اسبوع**
4	**هل رُزقت بأطفال بعد الطفل الأول؟ لا نعم كم عمره/ ها**

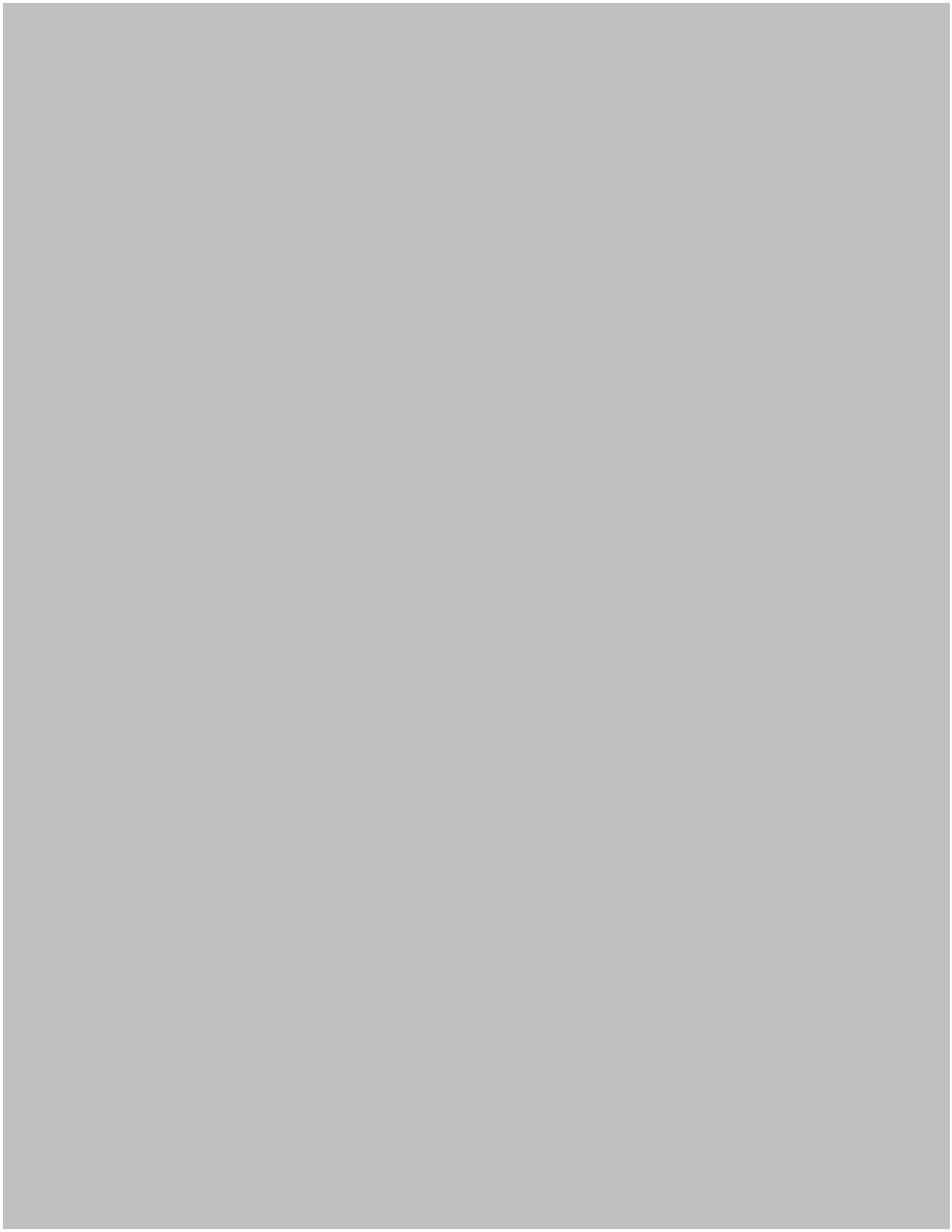
APPENDIX B-8: PDS SCALE (ARABIC)



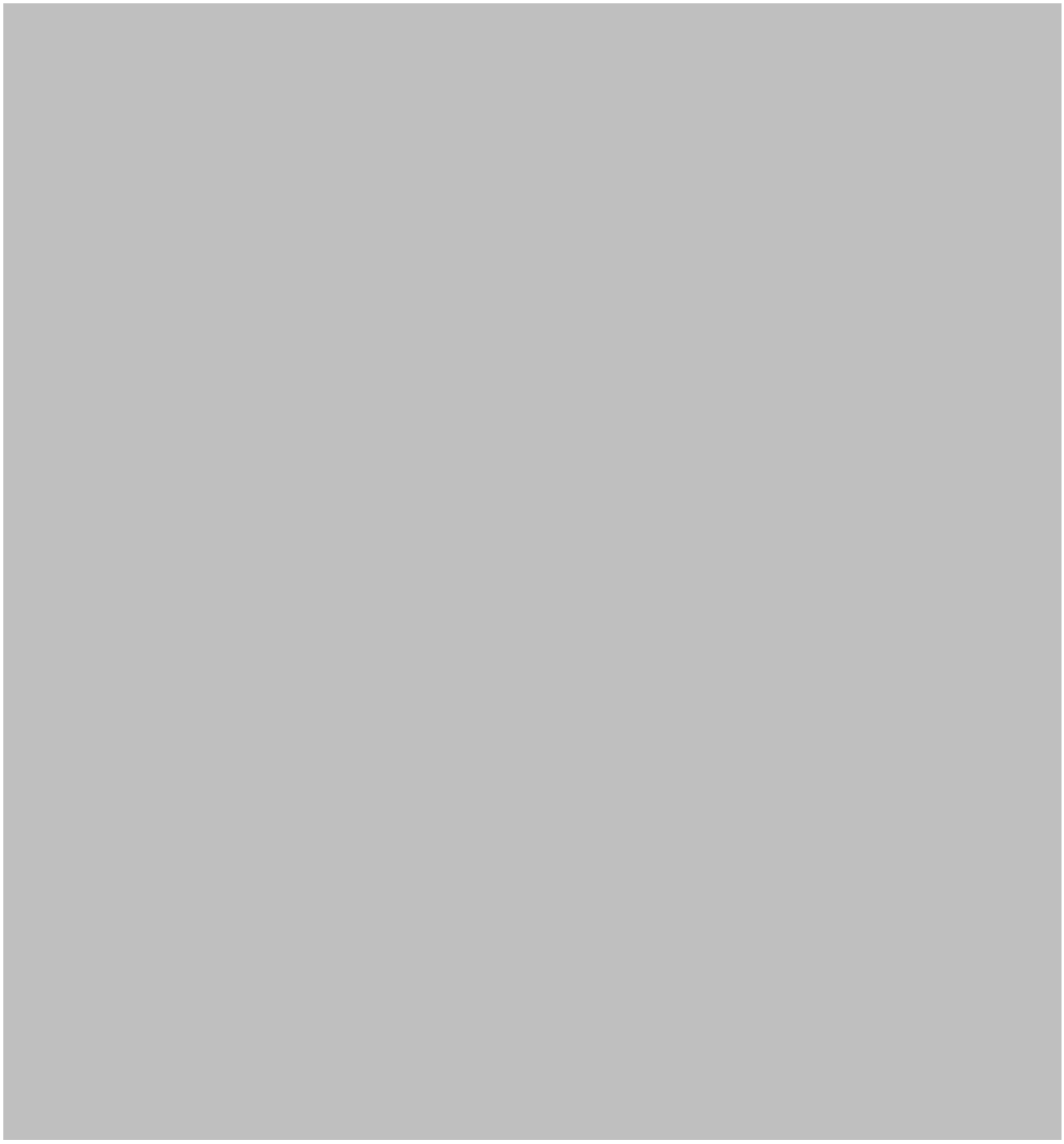
APPENDIX B-8: PDS SCALE (ARABIC)



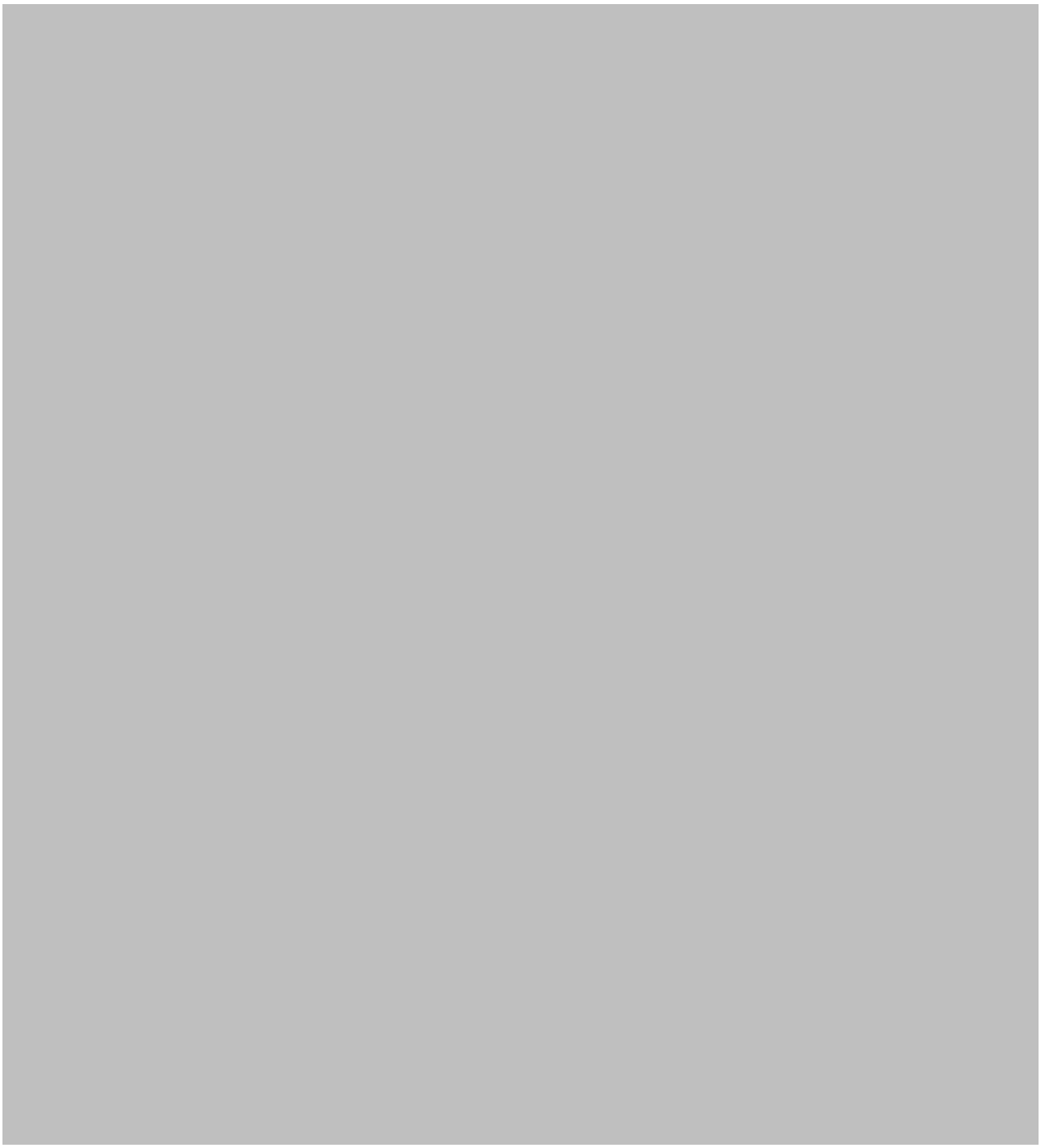
APPENDIX B-9: WAS SCALE (ARABIC)



APPENDIX B-9: WAS SCALE (ARABIC)

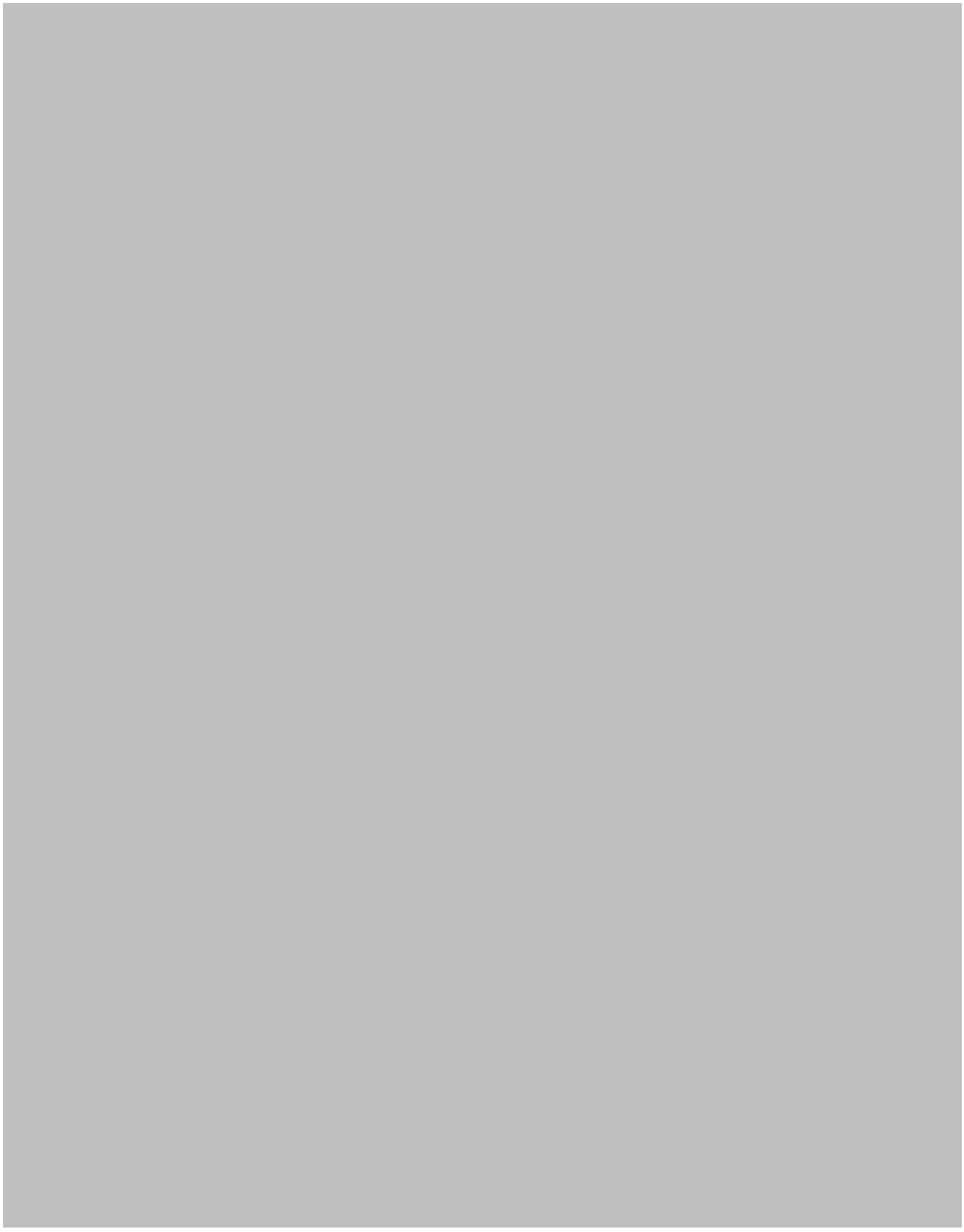


APPENDIX B-10: MMRI SCALE (ARABIC)

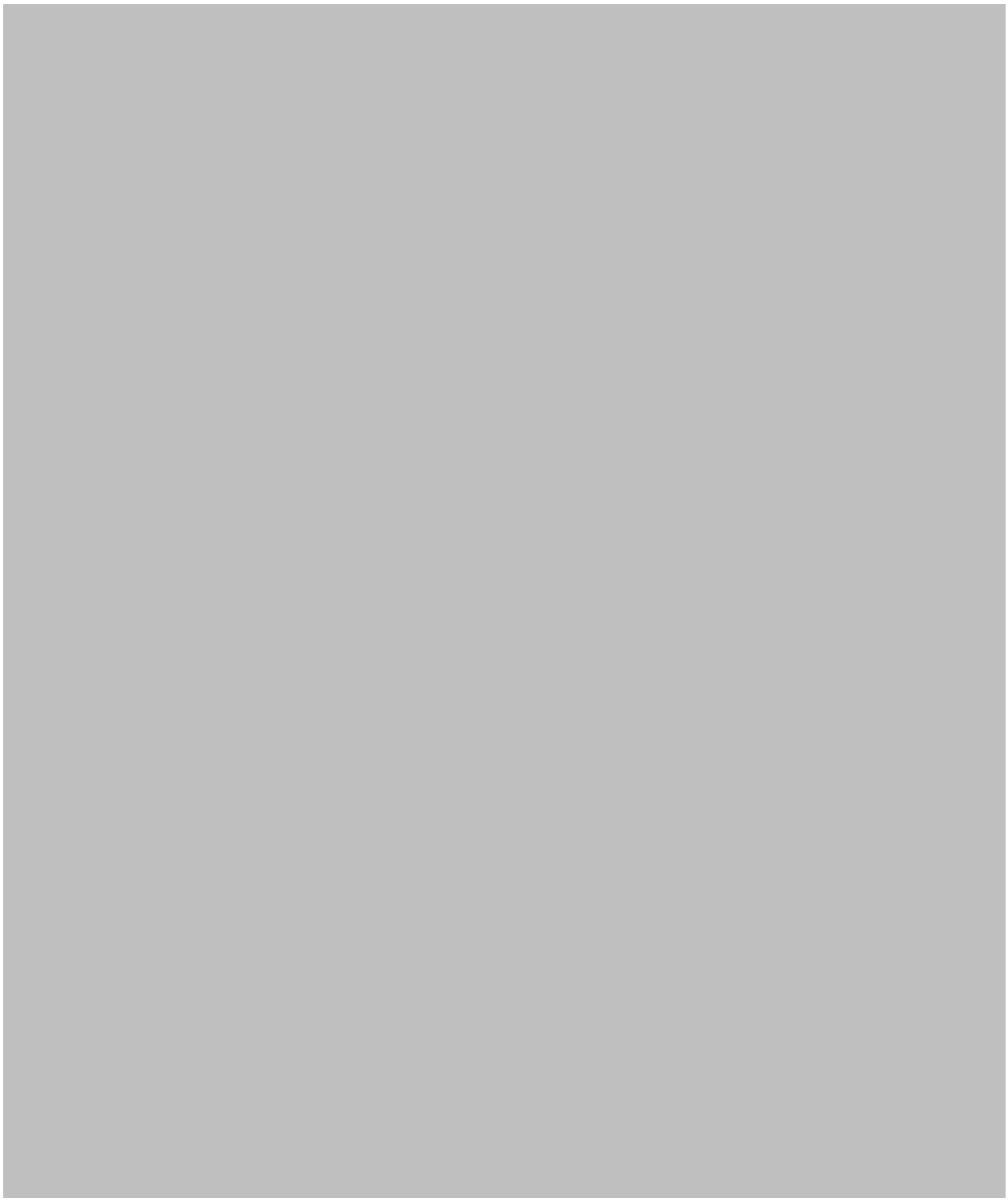


APPENDIX B-11: MSPSS SCALE (ARABIC)

APPENDIX B-12: RAAS SCALE (ARABIC)



APPENDIX B-13: MPAS SCALE (ARABIC)



APPENDIX B-13: MPAS SCALE (ARABIC)

APPENDIX B-14: HADS SCALE (ARABIC

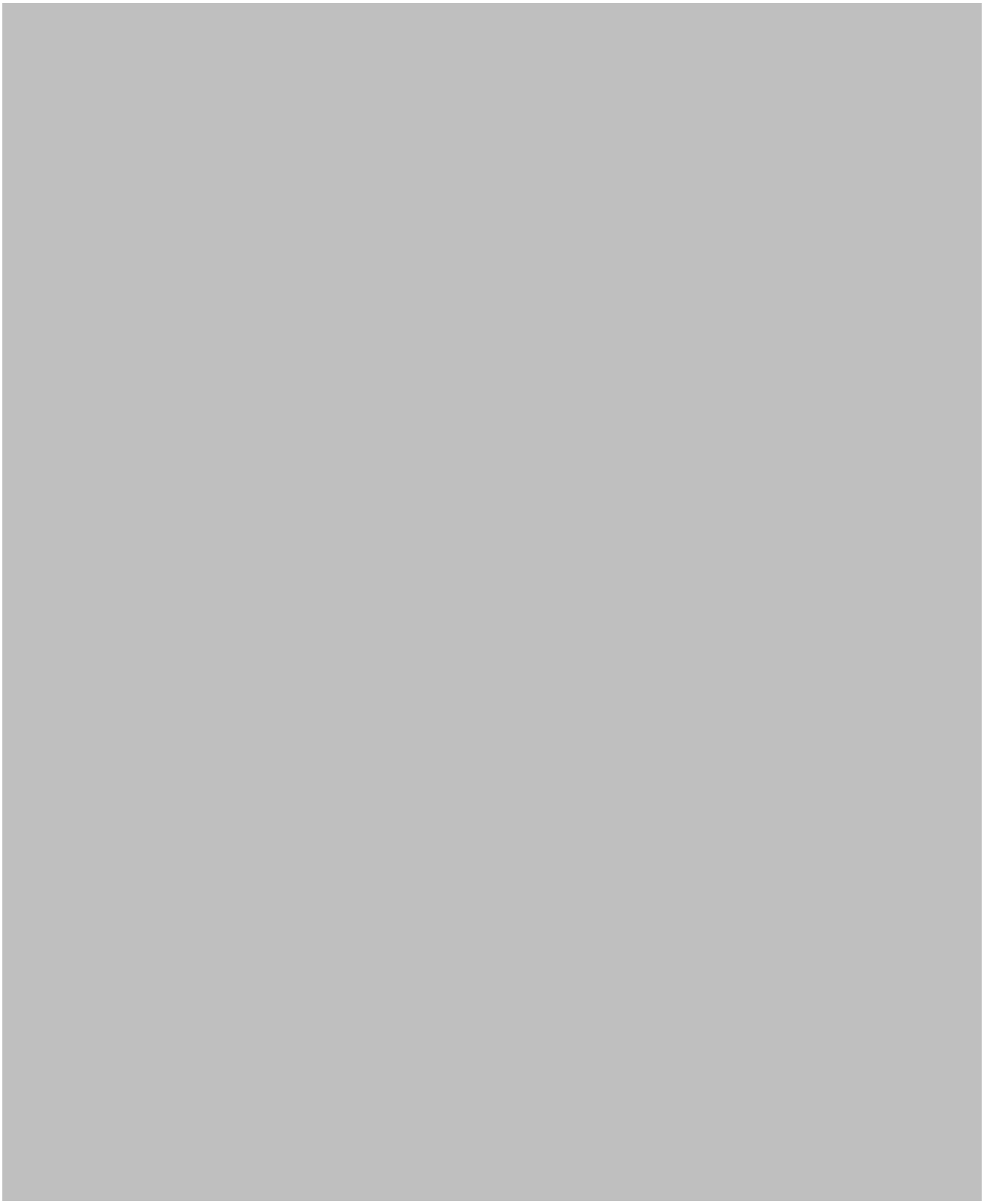


Table C-1

Summary Description of 64 Studies are Including in the Systemic Review

Scales		Article Title	Author	Aim	Country	Population			Timing of assessment	Methods	Result
						Sample	Age	Recruited			
IES	1	**Does Anxiety Sensitivity Predict Post-Traumatic Stress Symptoms Following Childbirth? A Preliminary Report**	Edmund Keogh; Susan Ayers; Harriet Francis (2002)	To determine whether prenatal levels of anxiety and stress are able to estimate the potential for PTSD symptoms following childbirth.	UK	40 women	18 - 42 years	Recruited from ante-natal clinics at St Georges Hospital, London.	- 36 weeks gestation. - 2 weeks postpartum	Self-report	The correlational assessment found that a merging of pre-natal and post-natal psychological factors plus obstetric incidents is linked with PTSD symptoms. With regression, it is possible to see that pre-natal anxiety is a good measure for the development of PTSD.
	2	**Patterns of attention and experiences of post-traumatic stress symptoms following childbirth: an experimental study**	Dale-Hewitt at al (2012)	To explore the link between attentional biases and PTS symptom	UK	50 women who experienced their labour and delivery as stressful	Over 16 years	Identified initially by health visitors	- 6 weeks afterbirth -6 months afterbirth	Interview took place at women's homes	Attentional biases were associated with symptoms of PTS and more negative experiences of childbirth. A negative experience was also linked with more severe symptoms of PTS. Positive experiences were unassociated with attentional biases or symptoms.

Table C-1

Summary Description of 64 Studies are Including in the Systemic Review

Scales		Article Title	Author	Aim	Country	Population			Timing of assessment	Methods	Result
						Sample	Age	Recruited			
	3	**Post-traumatic stress symptoms, parenting stress and mother-child relationships following childbirth and at 2 years postpartum**	S. McDonald et al. (2011)	To investigate the prevalence of PTS two years following childbirth, and to clearly define the link between these symptoms and self-reporting parenting stress and perspectives on the parent-child bond.	UK	81 women	17–40	From previous study on childbirth-related PTS symptoms (Iles et al., 2011)	2 years postpartum	Postal questionnaire	A proportion of 17.3% of participants claimed to have experienced some degree of PTS two years after birth. Yet, these symptoms only shared a very fragile coloration with parental stress, and cannot be linked with perspectives on the parent child bond. The initial PTS symptoms (certainly within three months of birth) did not demonstrate links with parental stress.

Table C-1

Summary Description of 64 Studies are Including in the Systemic Review

Scales		Article Title	Author	Aim	Country	Population			Timing of assessment	Methods	Result
						Sample	Age	Recruited			
	4	**Posttraumatic stress symptoms and postpartum depression in couples following childbirth: The role of partner support and attachment**	J. Iles et al. (2011)	The partner attachment and perspectives of partner support were investigated in regards to their connection with PTS and postpartum depression symptoms in couples, up to three months after the birth.	UK	212 Couples	Over 16 year	A postnatal ward in a UK hospital	Six weeks and three months postpartum	Interview and Postal questionnaire	The findings suggest that PTSD symptoms are dramatically lowered when discussing couples. In fact, the men's acute trauma symptoms can be used to predict the PTS experienced by their partner. Thus, an insecure attachment and dissatisfaction with partner support were linked with increasing PTSD levels.

Table C-1

Summary Description of 64 Studies are Including in the Systemic Review

Scales		Article Title	Author	Aim	Country	Population			Timing of assessment	Methods	Result
						Sample	Age	Recruited			
	5	**A prospective study of post- traumatic stress symptoms 1 month following childbirth in a group of 42 first-time mothers**	Lyons (1998)	To explore recorded symptoms of PTS among first time mothers, up to four weeks following childbirth.	UK	42 first-time mothers	20-39	The postnatal wards of a hospital in a rural location	1-4 days after delivery they were interviewed and were sent the questionnaires 1 month following childbirth	Interview and Postal questionnaire	A small subcategory of females expressed symptoms of PTS which suggested increased levels of distress . The highest IES scores were positively correlated with worries about losing control during childbirth. The variables that influence this correlation the most are the risk of a hard labour, the need to be induced, or be given an epidural. The lowest IES scores were associated with the upper classes and those with lots of assistance to fall back on.

Table C-1

Summary Description of 64 Studies are Including in the Systemic Review

Scales		Article Title	Author	Aim	Country	Population			Timing of assessment	Methods	Result
						Sample	Age	Recruited			
	6	**A qualitative analysis of the processes, mediating variables and impact of traumatic childbirth**	Allen (1998)	To investigate the courses involved with traumatic childbirth experiences , and to understand the variables influencing the potential for PTSD, as well as their effect on post-partum adaptation	UK	20 women	Age were not investigated	The GPs in the catchment area	10 months postpartum	Questionnaire and Interview	The outcomes demonstrate hen that PTSD and childbirth can be unequivocally linked, and that some mothers do report feelings of negativity and stress after the childbirth.

Table C-1

Summary Description of 64 Studies are Including in the Systemic Review

Scales		Article Title	Author	Aim	Country	Population			Timing of assessment	Methods	Result
						Sample	Age	Recruited			
	7	**How do memory processes relate to the development of posttraumatic stress symptoms following childbirth?**	Briddon et al. (2011)	To determine whether there is a link between memory disorganization and PTS in new mothers	UK	68 first time mother	18-44	First-time mothers who were admitted to post-natal wards at Jessop Hospital, Sheffield	-72 Hours after birth - Six weeks after birth	Questionnaire and Interview	There was a clear link between the memory disorganization and the development of PTS. The arrangement of the existing narrative means that it is not able to tell the difference between those will develop symptoms and those who will not.

Table C-1

Summary Description of 64 Studies are Including in the Systemic Review

Scales		Article Title	Author	Aim	Country	Population			Timing of assessment	Methods	Result
						Sample	Age	Recruited			
	8	**Posttraumatic growth following childbirth: A prospective study**	Sawyer et al. (2012)	To estimate and investigate correlations associated with PTG following childbirth, inclusive of socio-demographics and obstetric variable, as well as social support and psychologicald istress.	UK	125 women	18 - 42	Women recruited if Pregnant women were recruited from two hospital Clinics and from a community antenatal class in South East England	- + 28 weeks gestation - 8 weeks following childbirth	Self-report at clinic and Postal questionnaire	There was a very slight amount of develop recorded by women following childbirth; below 50% to be precise. Yet, typical levels of growth were usually lower within other studies. Thus, a regression framework featuring age, delivery options, PTS during pregnancy, and general anxiety was created. It demonstrates an expansion of around 32% in growth following childbirth. The most reliable measures of expansion are operative delivery and PTSD symptoms during pregnancy.

Table C-1

Summary Description of 64 Studies are Including in the Systemic Review

Scales		Article Title	Author	Aim	Country	Population			Timing of assessment	Methods	Result
						Sample	Age	Recruited			
	9	**Post-traumatic stress in couples after birth: Association with the couple's relationship and parent-baby bond**	Ayers et al.(2007)	To investigate the impact of post-natal symptoms on the health of a relationship and the parent-child bonds.	UK	64 couples	Participants mean age was 32.4 years	The Recruitment was from a London hospital during one month	Nine weeks following childbirth	Postal questionnaire	The findings suggested that 5% of couples with children have undergone serious PTSD symptoms. These signs were usually linked with the couple bond, but not necessarily with the parent child bonds. In fact the mother-child bond was not linked with any of the factors outlined. The father-child bonds are closely linked with the bond between the couple.

Table C-1

Summary Description of 64 Studies are Including in the Systemic Review

Scales		Article Title	Author	Aim	Country	Population			Timing of assessment	Methods	Result
						Sample	Age	Recruited			
	10	**Prenatal Depression, Mode of Delivery and Perinatal Dissociation as Predictors of Postpartum Posttraumatic Stress: An Empirical Study**	van Son et al. (2005)	To assess the validity of initial existing measures for post-partum PTS.	Netherlands	248 women	19- 43	Women who visited a midwife or obstetrician for antenatal control	- 32 weeks gestation - 3, 6 and 12 months postpartum	Structured interviews	There are two valid routes for postpartum PTS. (1) delivery-associated trauma variables predict postpartum PTS and (2) previous depression predicts postpartum PTS.

Table C-1

Summary Description of 64 Studies are Including in the Systemic Review

Scales		Article Title	Author	Aim	Country	Population			Timing of assessment	Methods	Result
						Sample	Age	Recruited			
	11	**The impact of subjective birth experiences on post-traumatic stress symptoms: a longitudinal study**	Garthus-Niegel et al (2013)	To evaluate the etiology of PTS following childbirth, using a transactional strategy for stress management.	Norway	1,499 women	Not mentioned	Mothers from the routine fetal ultrasound examination performed around gestational week 17 in the Akershus University Hospital.	- 32 weeks gestation - 8 weeks postpartum	Postal questionnaire	The findings indicate that subjective birthing encounters are the most essential variable when it comes to the development of PTSD symptoms following childbirth.

Table C-1

Summary Description of 64 Studies are Including in the Systemic Review

Scales		Article Title	Author	Aim	Country	Population			Timing of assessment	Methods	Result
						Sample	Age	Recruited			
	12	**Impact of Traumatic Birth Experience on Latina Adolescent Mothers**	Cheryl Anderson (2010)	To investigate the development of PTSD in Latin **Adolescent** mothers, particularly within three days of the birth.	USA	N = 85	teens ages 13 to 19	Latina teen women from postpartum units of a large county hospital in the southwest United States.	within 72 hours of delivery	Self-report at clinic	A third of the teenagers described their birth as being traumatic, and over half showed some sign of trauma exposure. The variables with the potential to influence the birth encounter included relationship status, anxieties about dying, worry about losing control, and partner related hostility. The perspective on childbirth and the tendency for depressive thoughts were impact the development of PTD symptoms.

Table C-1

Summary Description of 64 Studies are Including in the Systemic Review

Scales		Article Title	Author	Aim	Country	Population			Timing of assessment	Methods	Result
						Sample	Age	Recruited			
	13	**Negative emotions, childbirth pain, perinatal dissociation and self-efficacy as predictors of postpartum posttraumatic stress symptoms**	N. Goutaudier et al., (2012)	to assess the contribution of negative emotions, childbirth pain, perinatal dissociation, and feelings of self-efficacy to the development of posttraumatic stress disorder (PTSD) symptoms following childbirth.	France	98 women	19–41 years	From two private hospitals and a public one in the south of France area	at 2–3 days and 6 weeks postpartum	In the hospital and Postal questionnaire	Pain and negative emotions were significant predictors of the intensity of posttraumatic stress symptoms at 6 weeks postpartum. Although higher levels of pain contribute to increased PSTD symptoms, and higher negative emotion also contributes to PTSD symptoms, the effect of pain on PSTD is stronger when there are high levels of negative emotion.

Table C-1

Summary Description of 64 Studies are Including in the Systemic Review

Scales		Article Title	Author	Aim	Country	Population			Timing of assessment	Methods	Result
						Sample	Age	Recruited			
	14	**The Role of Labor Pain and Overall Birth Experience in the Development of Posttraumatic Stress Symptoms: A Longitudinal Cohort Study**	S. Garthus-Niegel et al (2014	To explore the importance of pain in childbirth, and to determine how influential the overall experience.	Norway	1893 women	Mean age at delivery was 31.1 years	From the Akershus University Hospital in Norway	From pregnancy weeks 17 to 32, from the maternity ward, and from 8 weeks postpartum	A hand out questionnaire	The development of PTSD symptoms was strongly linked with pain in childbirth (r = 0.23) and the overall birth encounter (r = 0.39). A sizeable proportion (33%) of the recorded impacts of childbirth pain on PTSD birth experience as a whole.
IES-R	1	**Childbirth and Posttraumatic Stress Responses A Validation Study of The Dutch Impact of Event Scale – Revised**	Olde et al. (2006)	To explore the psychometric characteristics of the updated Dutch version of the Impact Event Scale (IES-R)	Netherlands	435 women following childbirth	21-40	From midwifery practices in Veldhoven	3 months postpartum	Postal questionnaire	Whilst the IES-R can be employed for the purposes of assessing post-traumatic stress responses in females who have recently given birth, the older version of the IES turned out to be a more useful tool, particularly in comparison to the IES-R. Thus, it seems clear that supplementing the hyperarousal for the IES-R actually does not improve the efficiency of the scale.

Table C-1

Summary Description of 64 Studies are Including in the Systemic Review

Scales		Article Title	Author	Aim	Country	Population			Timing of assessment	Methods	Result
						Sample	Age	Recruited			
	2	**Post-traumatic stress disorder related to birth: a prospective longitudinal study in a French population**	Denis et al. (2011)	To define the frequency of PTSD symptoms manifested following childbirth among a sample of French participants, and to investigate predictive factors.	French	239 women who	30 years old on average	French university hospital maternity service	48 h, 1 month, 4 months and 9 months post-partum.	In the hospital and Postal questionnaire	The PTSD ranged from 5% (after four weeks) to 2.9% (after nine months). The most important variables associated with the standardised IES-R rating are birth preparation sessions, movement to a tertiary medical center , perspectives on exterior controls, sensations of pain during childbirth, and depressive symptoms .

Table C-1

Summary Description of 64 Studies are Including in the Systemic Review

Scales		Article Title	Author	Aim	Country	Population			Timing of assessment	Methods	Result
						Sample	Age	Recruited			
	3	**The role of schema and appraisals in the development of post-traumatic stress symptoms following birth**	Edworthy et al. (2008)	To investigate the link between current scheme and their relationship with prior traumas, birth encounters, and social assistance relating to the development of PTSD symptoms following childbirth.	UK	121 first-time mothers.	16–41	The community midwives at antenatal clinics and the researchers at parenting classes	- 34 weeks pregnancy, - 6 weeks post-partum.	Postal questionnaire	The opinions on the birthing encounter and current schemas do have an impact on the potential development of PTSD following childbirth.

Table C-1

Summary Description of 64 Studies are Including in the Systemic Review

Scales		Article Title	Author	Aim	Country	Population			Timing of assessment	Methods	Result
						Sample	Age	Recruited			
PDS	1	A prospective longitudinal study of the prevalence of post-traumatic stress disorder resulting from childbirth events	Alcorn et al. (2010)	To explore the frequency of PTSD following childbirth among a large sample, whilst still taking into account current PTSD symptoms and past symptomatology.	Australia	933 women	29 years old on average	Two antenatal Clinics	Last trimester of pregnancy, 4–6 weeks postpartum, 12 weeks, 24 weeks postpartum.	Phone Interview	A proportion of 3.6% of females encountered PTSD characteristics after 4-6 weeks following childbirth. A further 6.3% encountered them at 12 weeks, and 5.8% encountered them at 24 weeks. If taking into account controls for PTSD and partial PTSD, it is important to think about past traumas, as well as any serious stress or depression throughout pregnancy. The PTSD prevalence was lower at 1.2% (4-6 weeks). It was 3.1% at 12 weeks and 3.1% at 24 weeks following childbirth.

Table C-1

Summary Description of 64 Studies are Including in the Systemic Review

Scales		Article Title	Author	Aim	Country	Population			Timing of assessment	Methods	Result
						Sample	Age	Recruited			
	2	Childbirth-related post-traumatic stress disorder in couples: A qualitative study	K. Nicholls & S. Ayers (2007)	To examine the encounter and effects of childbirth, particularly in relation to PTSD in females and their partners.	UK	Six couples,	26 to 50 years	Advertisements on the internet	Over 3 months ago	A qualitative interview	This research seems to indicate that PTSD might have a negative effect on couples and the parent-child ties.

Table C-1

Summary Description of 64 Studies are Including in the Systemic Review

Scales		Article Title	Author	Aim	Country	Population			Timing of assessment	Methods	Result
						Sample	Age	Recruited			
	3	Depressive symptoms and symptoms of post-traumatic stress disorder in women following childbirth	Zaers et al. (2008)	To investigate the development of psychological issues in females, from late pregnancy to 6 months following childbirth, the prevalence of psychiatric disorders, particularly in relation to depressive and PTSD symptoms and relevant antecedent factors.	Germany	60 Women	19 - 42 years	Childbirth classes in a hospital	-Late pregnancy -One to three days postpartum, -Six weeks - Six months postpartum	Postal questionnaire	A proportion of 6% of females described clinically viable PTSD symptoms after six weeks following childbirth, with 14.9% claiming to encounter these symptoms six months following childbirth. The most significant predictor related to depressive and PTSD symptoms is the block standard factor of 'stress in late pregnancy.' However, additional predictors are the factors of psychiatric symptoms in late pregnancy and the type of delivery.

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Scales		Article Title	Author	Aim	Country	Population			Timing of assessment	Methods	Result
						Sample	Age	Recruited			
	4	Exploration of a cognitive model to predict post-traumatic stress symptoms following childbirth	Ford et al (2010)	To explore the employment of cognitive frameworks to PTSD symptoms following childbirth, and to examine the social assistance related to the framework.	UK	138 women	32.12 years old on average	Public UK hospitals and community antenatal clinics.	Pregnancy, 3-weeks and 3-months after birth	Postal questionnaire	In employing the structural equation framework, a cognitive model explained 23% of the variance in PTS encountered three weeks following childbirth. After three months, the model explained just 9% of the variance in PTSD symptoms. The inclusion of social assistance, partly facilitated by post-traumatic cognitions, raised the variance to 16%.

Table C-1

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Scales		Article Title	Author	Aim	Country	Population			Timing of assessment	Methods	Result
						Sample	Age	Recruited			
	5	Posttraumatic stress disorder following childbirth: Analysis of symptom presentation and sampling	Ayers et al. (2009)	To investigate the demonstration and symptom of PTSD following childbirth, and outline the risk variables associated with females targeted in online and community samples.	UK	1423 women after birth	N/A	The community (hospital and community antenatal clinics) and the internet	Pregnancy and 3–12 months after birth.	Postal questionnaire	Full PTSD diagnostic criteria were supported by 2.5% of females from the community, and 21% of females online. There were more PTSD symptoms that could be increased by post-natal factors.

Table C-1

Summary Description of 64 Studies are Including in the Systemic Review

Scales		Article Title	Author	Aim	Country	Population			Timing of assessment	Methods	Result
						Sample	Age	Recruited			
	6	Post-traumatic Stress Disorder Post-Partum The Impact of Birth on the Prevalence of Post-traumatic Stress Disorder (PTSD) in Multiparous Women	Schwab Wet al. (2012)	This research attempted to assess the amount of women who develop PTSD as a result of childbirth.	Austria	56 multiparous women	21 and 46 years	The University Clinic of Gynaecology and Obstetrics in Innsbruck	-30th to 38th week of gestation - in the 6th week post-partum	Telephone and a structured interview	A proportion of 21 % of multiparous females fulfill the diagnostic PTSD criteria six weeks following childbirth. Following the exclusion of all instances already defined by all characteristics or a sub-syndromal type of PTSD caused by a prior trauma. The PSTD rating was under 8% at 6 weeks following childbirth.

Table C-1

Summary Description of 64 Studies are Including in the Systemic Review

Scales		Article Title	Author	Aim	Country	Population			Timing of assessment	Methods	Result
						Sample	Age	Recruited			
	7	Post-traumatic growth in women following childbirth	A. Sawyer and S. Ayers (2009)	To investigate post-traumatic development in females following childbirth	UK	219 women	18 - 42	Relevant websites	Within the 36 months after birth.	Online questionnaire	At least a small amount of growth was recorded by just over half of all females. The development was positively correlated to stress management and the avoidant strategy of pursuing substitutes rewards. However, it was not linked with loss of control during childbirth, or other avoidant techniques and PTSD symptoms.

Table C-1

Summary Description of 64 Studies are Including in the Systemic Review

Scales		Article Title	Author	Aim	Country	Population			Timing of assessment	Methods	Result
						Sample	Age	Recruited			
	8	Support during birth interacts with prior trauma and birth intervention to predict postnatal post-traumatic stress symptoms	E. Ford and S. Ayers (2011)	To investigate the importance of assistance from professional experts and personal strength through the childbirth, as predictors of PTSD symptoms.	UK	138 women between 33 and 37 weeks pregnant	Mean: 32.12 years	UK NHS maternity clinics	pregnancy, 3 weeks and 3 months after the birth.	Postal questionnaire	Support and control throughout childbirth are not predictive of post-natal PTSD symptoms. Yet, support was indicative of PTSD signals in a subcategory of females with past traumas, at both 3 weeks and 3 months after birth. The link between birth intervention and support was linked with PTSD symptoms 3 months following childbirth; the link between support and PTSD symptoms was stronger in females undergoing increased intervention.

Table C-1

Summary Description of 64 Studies are Including in the Systemic Review

Scales		Article Title	Author	Aim	Country	Population			Timing of assessment	Methods	Result
						Sample	Age	Recruited			
	9	The effect of post-natal symptoms of post-traumatic stress and depression on the couple's relationship and parent–baby bond	Y.M. Parfitt and S. Ayers (2009)	To investigate the prospective impact of PTSD symptoms on the couple and the parent-infant bond.	UK	152 parents (126 women and 26 men)	F 19 - 45 years, M 22-54	Recruited via local organisations	Their babies were between 1 and 24 months old	Internet-based questionnaire	PTSD symptoms and depression were positively correlated with the links between a couple and the parent-infant bond. The structural equation framework discovered that the model which most suits the information is the one in which the PTSD symptoms had a big impact on the parent-infant bond, but the impact on the couple was tempered by depression.

Table C-1

Summary Description of 64 Studies are Including in the Systemic Review

Scales		Article Title	Author	Aim	Country	Population			Timing of assessment	Methods	Result
						Sample	Age	Recruited			
	10	The effects of childbirth-related posttraumatic stress disorder on women and their relationships: A qualitative study	Ayers et al. (2007)	To examine the long-term impact of childbirth related PTSD on females, their interactions with a partner, and their relationship with their infant.	UK	Six women who reported clinically significant PTSD after birth,	22 -37 years when they gave their first traumatic birth	From the Birth Crisis Network, responses to media articles and word of mouth	Time since the traumatic birth experience ranged from 7 months to 18 years	Semi structured interviews	Childbirth related PTSD was discovered to have far reaching impacts on females and their interactions with others; in a physical and a social way. This incorporates mood and behavior, social skills, anxieties about birth, and more. The females expressed negativity towards their partners, often in the form of a lack of sexual contact, or even the urge to hold them responsible for a traumatic birth. The parent-infant bond was also affected. Close to 50% of all the females expressed feelings of negativity towards the infant, but that this altered over time.

Table C-1

Summary Description of 64 Studies are Including in the Systemic Review

Scales		Article Title	Author	Aim	Country	Population			Timing of assessment	Methods	Result
						Sample	Age	Recruited			
	11	The role of adult attachment style, birth intervention and support in posttraumatic stress following childbirth: A prospective study	Ayers et al. (2013)	To explore the links between attachment style, mode of birth, and assistance in predicting PTSD symptoms following childbirth.	UK	76 women and 65 of their partners who were expecting a first baby	25–46 years	Women were recruited through community and hospital antenatal clinics or classes, and local advertisements.	30 weeks gestation and three months postpartum	Postal questionnaire	The avoidant attachment style, operative childbirth (assisted natural or surgical birth), and a lack of support throughout the experience were all noticeably linked with post-natal PTSD symptoms. The regression evaluation demonstrated that avoidant attachment style mediated the link between operative birth and PTSD symptoms, particularly when females with avoidant attachment style who experienced this kind of delivery were most in danger of developing PTSD.

Table C-1

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Scales		Article Title	Author	Aim	Country	Population			Timing of assessment	Methods	Result
						Sample	Age	Recruited			
	12	What makes labour and birth traumatic? A survey of intra-partum 'hotspots'	R. Harris & S. Ayersb (2012)	To explore the content of intra-partum hotspots and determine if specific events cognitions, or feelings throughout hotspots are linked with PTSD.	UK	675 women who experienced a difficult or traumatic birth	19 - 66 years	Internet support groups and charity websites, also, midwives and researchers working in the area	N/A	Online Questionnaires	Most of the females (67%) expressed at least one hotspot throughout childbirth, and just over 50% encountered them a second time. The females were more at risk of developing PTSD if the hotspots were associated with anxiety and a loss of control, or intra-partum dissociation. The risk of PTSD was increased if hotspots were linked with personal problems or obstetric difficulties, particularly involving the child.

Table C-1

Summary Description of 64 Studies are Including in the Systemic Review

Scales		Article Title	Author	Aim	Country	Population			Timing of assessment	Methods	Result
						Sample	Age	Recruited			
	13	Predicting posttraumatic stress disorder following childbirth	A.O' Donovan et al., 2014	To investigate the predictors related to birth trauma, whilst taking into account a selection of pre-birth variables as the first phase of producing a participant selection survey.	Australia	866 women.	The mean age was 28.6 years	Antenatal clinics.	Four to six weeks post-partum; 12 weeks postpartum.	Questionnaire+ Phone Interview	The result suggests that the frequency of PTSD symptoms has an altered impact on initial parent-infant bonds, particularly in comparison with female who have not experienced PTSD symptoms.

Table C-1

Summary Description of 64 Studies are Including in the Systemic Review

Scales		Article Title	Author	Aim	Country	Population			Timing of assessment	Methods	Result
						Sample	Age	Recruited			
PSS-SR	1	Childbirth and the Development of Acute Trauma Symptoms: Incidence and Contributing Factors	Creedy ET AL., (2000)	To identify the prevalence of acute trauma symptoms and PTSD in females, as a consequence of their childbirth encounters, and to highlight variables which may have had an impact on the level of psychological distress.	Australia	499 WOMEN	19- to 39-year	From four public hospital antenatal clinics.	last trimester of pregnancy 4 to 6 weeks postpartum	Telephone interviews	A proportion of 33% of females experienced a traumatic childbirth encounters and recorded the presence of up to three trauma symptoms. A further 5.6% fulfilled DSM-IV requirements for acute PTSD. The before birth differences did not have an impact on the development of acute or persistent symptoms.

Table C-1

Summary Description of 64 Studies are Including in the Systemic Review

Scales		Article Title	Author	Aim	Country	Population			Timing of assessment	Methods	Result
						Sample	Age	Recruited			
	2	Do women get posttraumatic stress disorder as a result of childbirth? A prospective study of incidence.	S. Ayers & Al. Pichening., (2001)	To confirm the idea that some females develop PTSD as a result of birth, and to offer a prediction of the PTSD prevalence	UK	289 women	14- 46	From antenatal clinics at a large hospital in London	36 weeks gestation and 6 weeks and 6 months postpartum	Postal questionnaire	A proportion of 2.8% of females met criteria for the PTSD after six weeks following birth, and this was lowered to 1.5% at six months following birth. The findings indicate that at least 1.5% of females might develop persistent PTSD as a consequence of birth.

Table C-1

Summary Description of 64 Studies are Including in the Systemic Review

Scales		Article Title	Author	Aim	Country	Population			Timing of assessment	Methods	Result
						Sample	Age	Recruited			
	3	Fear of childbirth and obstetrical events as predictors of postnatal symptoms of depression and post-traumatic stress disorder	N. Fairbrother & S. R. Woody, .(2007)	This study explored the mental and medical predictors of persistent PTSD symptoms and depression.	Canada	127nulliparous women experiencing a low-risk pregnancy	22–42 years	Prenatal education classes	37 weeks gestation. One month following the birth	Postal questionnaire	A pre-birth anxiety relating to labour did not have any noticeable impact on the ability to predict symptoms of depression or PTSD. However, anxiety sensitivity was a surprise predictor, and this needs more research. A range of obstetrical and pre-birth factors can be used to predict the risk of PTSD symptoms, but not depression.

Table C-1

Summary Description of 64 Studies are Including in the Systemic Review

Scales		Article Title	Author	Aim	Country	Population			Timing of assessment	Methods	Result
						Sample	Age	Recruited			
	4	Neuroticism and low educational level predict the risk of posttraumatic stress disorder in women after miscarriage or stillbirth	I.M. Engelhard et al.	To find out if neuroticism and education have an impact on the risk of PTSD in females following an unsuccessful pregnancy.	The Netherlands	1339 women	30. 00 years old on average	Advertisements in Dutch national newspapers	pregnancy and 1 month after the expected birth date	Postal questionnaire	A proportion of 26% of the females fulfilled the DSM_IV criteria for PTSD and 74% of females did not. The logistic regression evaluation found that PTSD was dramatically linked with increased neuroticism, less schooling, and a lengthier pregnancy.
	5	Post-Traumatic Stress Disorder (PTSD) Following Childbirth: Prevalence and Contributing Factors	Shaban et al. (2013)	To examine the frequency of PTSD following childbirth.	Iran	600	Not specific	The mother and baby units	6-8 week postpartum	Questionnaire	A proportion of 17.2% of females experienced PTSD symptoms following childbirth. The findings of the logistic regression evaluation demonstrated a noticeable link between maternal roles (P = 0.01), degree of depression, (P < 0.001) and the amount of worry (P < 0.001) with PTSD following birth.

Table C-1

Summary Description of 64 Studies are Including in the Systemic Review

Scales		Article Title	Author	Aim	Country	Population			Timing of assessment	Methods	Result
						Sample	Age	Recruited			
	6	Postnatal depression and post-traumatic stress following childbirth: Prevalence, course and co-occurrence	T. WHITE ET AL. (2006)	To offer more support relating to the frequency and longitudinal development of PTS, as a consequence of difficult birth experiences. .	Australia	400 women	17 - 41	from the maternity ward of a public hospital in South West Sydney.	at birth, 6 weeks, 6 months and 12 months post-partum	Postal questionnaire	The risk of developing a PTSD disorder after six weeks following birth stands at 2%. An additional 10.5% of females expressed noticeable distress associated with birth, and various signs of PTSD without fulfilling all of the diagnostic criteria. The frequency of PTSD disorders stay fairly constant throughout the initial year following birth, with 2.6% at six months and 2.4% at twelve months.

Table C-1

Summary Description of 64 Studies are Including in the Systemic Review

Scales		Article Title	Author	Aim	Country	Population			Timing of assessment	Methods	Result
						Sample	Age	Recruited			
	7	Posttraumatic Stress Disorder in New Mothers Results from a Two-Stage U.S. National Survey	C. T. Beck et al., (2011)	To investigate the findings related to the PTSD results gathered from a two phase American study, carried out by Childbirth Connection.	USA	1,373 women 200 mothers were interviewed	18 to 45 years	The full questionnaire is located on the online website	1 to 12 months postpartum, and 6 months later	Online, and interview by telephone	A proportion of 9% of the participants fulfilled the diagnostic of PTSD following birth. The following factors were positively linked with increased PTSD symptoms; lack of support from partner, increased post-partum anxiety, physical health issues, a lack of health promotion actions. Plus, eight factors clearly distinguished females who experienced increased PTSD symptoms from those who did not.

Table C-1

Summary Description of 64 Studies are Including in the Systemic Review

Scales		Article Title	Author	Aim	Country	Population			Timing of assessment	Methods	Result
						Sample	Age	Recruited			
	8	The Influence of Prenatal Trauma, Stress, Social Support, and Years of Residency in the US on Postpartum Maternal Health Status Among Low-Income Latinas	L A. Sumner et al (2011)	To investigate the links between pre-natal psychosocial factors(incorporating depression and PTSD symptoms) an d partner violence, increased stress, a lack of social support, and decreased health promotion behaviours.	USA	203 women	N/A	Recruited from two health plans At the waiting area for routine appointments	12 weeks of pregnancy and 3 months after birth.	Semi-structured interviews	Health status was positively linked with lower levels of perceived stress , being an overseas citizen, and currently living in America. The level of emotional well-being was positively correlated with that, and more social support and more positive perspectives on childbirth. The risk of interaction with non-precise IPV trauma and health issues throughout pregnancy and childbirth are negatively linked with overall physical condition.

Table C-1

Summary Description of 64 Studies are Including in the Systemic Review

Scales		Article Title	Author	Aim	Country	Population			Timing of assessment	Methods	Result
						Sample	Age	Recruited			
	9	Thoughts and Emotions During Traumatic Birth: A Qualitative Study	Susan Ayers, (2007~)	To investigate the emotion and thoughts occurring throughout childbirth, whilst taking into account cognitive processing following birth, and any lasting memories of the event which may increase the risk of PTSD.	UK	25 women with PTSD and 25 without.	30. 00 years old on average	Antenatal clinics at a teaching hospital in the United Kingdom	3 months after birth.	Interview	The findings turned out to express more negative than positive emotions throughout childbirth. The post-natal cognitive processing included memories of the encounter. The memories of labour included forgetting aspects of the event, and neglecting to remember how traumatic it was. Females with PTS expressed more panic and anger during birth ; following birth they recorded less Strategies associated with the present, and expressed more difficult memories and thoughts than females without the PTSD symptoms.

Table C-1

Summary Description of 64 Studies are Including in the Systemic Review

Scales		Article Title	Author	Aim	Country	Population			Timing of assessment	Methods	Result
						Sample	Age	Recruited			
	10	Peri-traumatic Dissociation and Emotions as Predictors of PTSD Symptoms Following Childbirth	Olde et al.,(2005)	To examine the importance of perinatal dissociative and perinatal emotion to the development PTSD following childbirth.	The Netherlands.	140 women	The average age was 31.5 years	They were clients of midwifery practices in the town of Veldhoven	From the first week after delivery to three months postpartum	Questionnaire	A proportion of 2.1% of females fulfilled PTSD, and 21.4% recorded a traumatic childbirth experience. Both perinatal negative responses and perinatal dissociative responses can be used as measures for PTSD symptoms, particularly after three months. The impact of perinatal dissociation was partly tempered by perinatal emotional responses.
PSS-I	1	Prevalence and risk factors of childbirth-related post-traumatic stress symptoms	M. Modarres,. (2012)	To predict the risk of PTSD symptoms and obstetric related variables among a group of Iranian females.	Iran	400 women 6 to 8 weeks following childbirth	20-36	From 11 healthcare centres for postnatal care	6 to 8 weeks following childbirth	Interview	A proportion of 54.4% of females experienced a difficult labour, and 20% were seen to be dealing with PTSD.

Table C-1

Summary Description of 64 Studies are Including in the Systemic Review

Scales		Article Title	Author	Aim	Country	Population			Timing of assessment	Methods	Result
						Sample	Age	Recruited			
	2	Childhood sexual abuse as a predictor of birth-related posttraumatic stress and postpartum posttraumatic stress	R. Lev-Wiesel et al (2009)	To examine the degree to which birth might serve as a negative memory of past sexual abuse, and might make PTSD responses worse.	Israel	837 women	18–44 years	From three major Health Funds in Israel	Mid-pregnancy, at 2 and 6 months following childbirth	Face to face, and telephone	The PTSD subcategories of intrusion and arousal were higher within the CSA group following childbirth, even if the total PTSD score did not rise after birth in any of the CSA survivor scored which ranked higher at every data collection time measure.

Table C-1

Summary Description of 64 Studies are Including in the Systemic Review

Scales		Article Title	Author	Aim	Country	Population			Timing of assessment	Methods	Result
						Sample	Age	Recruited			
TES	1	A pilot study of eye movement desensitisation and reprocessing treatment (EMDR) for post-traumatic stress following childbirth	M Sandstro¨m ET AL., (2008)	To investigate the potential for utilizing eye motion desensitization and reprocessing EMDR to help females who have undergone PTSD following birth.	Sweden	4 women with post-traumatic stress disorder (PTSD) following childbirth	24-31	By the midwife at the Aurora team	'Before and after' treatment study with follow-up measurements 1–3 years after the treatment	Interview	All participants recorded a lowering of PTSD levels following treatment. After 1-3 years, the advantages of EMDR treatment stayed constant for 3 out of 4 females. The prevalence of intrusive thoughts and avoidance was deemed the most responsive to this kind of help.

Table C-1

Summary Description of 64 Studies are Including in the Systemic Review

Scales		Article Title	Author	Aim	Country	Population			Timing of assessment	Methods	Result
						Sample	Age	Recruited			
	2	Posttraumatic Stress Disorder Following childbirth: A Cross Sectional Study	K. WIJMA (1997)	To predict the risk of developing PTSD symptoms following birth, and to examine the overall cognitive appraisal of birth.	Sweden.	1640 women who had given birth over a 1-year period in Linköping, Sweden.	18-45	From the Department of Obstetrics and Gynaecology, Linköping, Sweden,	Over 1 year post-partum	Postal questionnaire	A proportion of 1.7% of 1640 participants fulfilled PTSD following recent birth criteria. A PTSD profile was linked with a past experience of having psychological counseling, a negative cognitive appraisal of the past delivery, nulliparity, and opinions on the interaction with birthing professionals on negative terms.

Table C-1

Summary Description of 64 Studies are Including in the Systemic Review

Scales		Article Title	Author	Aim	Country	Population			Timing of assessment	Methods	Result
						Sample	Age	Recruited			
	3	Prevalence and Predictors of Women's Experience of Psychological Trauma During Childbirth	J. E. Soet (2003)	To investigate the pace at which females undergo psychological trauma throughout birth, and to evaluate the potential causal variables. This study also assesses the potential variables relating to the development of PTSD.	US	103 women	29.20 years old on average	From childbirth education classes in the Atlanta metropolitan area	In late pregnancy and a follow-up 4 weeks after the birth.	Postal questionnaire AND phone interview	A proportion of 34% of females recorded difficult birthing encounters. A further 1.9% demonstrated all of the PTSD criteria, and 30.1% was only partly symptomatic. The regression evaluation indicates that antecedent factor and incident event characteristics were important predictors of the trauma during birth. The pain encounter throughout labour, the degree of social support, self-efficacy , interior locus influence, , trait anxiety, and coping were all important measures of the risk of PTSD following childbirth.

Table C-1

Summary Description of 64 Studies are Including in the Systemic Review

Scales		Article Title	Author	Aim	Cou ntry	Population			Timing of assessment	Methods	Result
						Sample	Age	Recruited			
	4	Risk factors in pregnancy for post-traumatic stress and depression following childbirth	J So¨derquist et al., (2008)	To identify the risk factors throughout pregnancy for PTS and depression, four weeks following birth. This study also assessed the link between PTSD and depression.	Sweden	1224 women	15-45	From the Department of Obstetrics and Gynecology In the first ultrasound examination during pregnancy	Pregnancy; weeks 12–20 and week 32, as well as one month postpartum.	Postal questionnaire	Four weeks after birth, 1.3% off females experienced PTS. The most significant risk related variable throughout pregnancy was the development of depressive emotions during early pregnancy (OR=16.3), a severe fear of childbirth (OR=6.2), pre- traumatic stress (about the impending birth) during later pregnancy(OR=12.5). The risk of depression stands at 5.6%. The depression and PTSD profiles were positively linked after four weeks following childbirth, and were related to almost all of the same variables.

	5	The longitudinal course of post-traumatic stress following childbirth	J SODERQUIST et al., (2006)	To evaluate PTSD related anxiety during late pregnancy, and 1, 4, 7, and 11 months following the birth.	Sweden	1224 women	15-45	From the Department of Obstetrics and Gynecology. In the first ultrasound examination during pregnancy	In early and late pregnancy, and 1, 4, 7, and 11 months postpartum	Postal questionnaire	A proportion of 3% of females experienced post-birth anxiety on at least one occasion 1-11 months after birth. During pregnancy, depression, fears about birth, traumatic stress , prior treatment relating to birth, and prior mental issues are all linked with a higher risk of developing PTSD symptoms during this time frame. The overall ratings of PTSD anxiety did not lower over time, particularly among females who had experienced at least one example of PTSD anxiety 1-11 months following the birth. Females with PTSD demonstrated a reduction in perceived social assistance over time, following the birth.

Table C-1

Summary Description of 64 Studies are Including in the Systemic Review

Scales		Article Title	Author	Aim	Country	Population			Timing of assessment	Methods	Result
						Sample	Age	Recruited			
	6	Traumatic stress following childbirth: the role of obstetric variables	J. Soderquist et al., (2002)	To evaluate traumatic stress following birth, in accordance with obstetric variables	Sweden	1550 recently delivered women	15-45	All women who gave birth at the Department of Obstetrics and Gynaecology, Linkoping, Sweden, between November 1993 and November 1994.	More than one month postpartum	Postal questionnaire	PTSD symptoms and profiles were positively correlated with the presence of emergency surgical intervention or instrumental vaginal childbirth. It is important to note though that most females with a PTSD disorder did experience a standard vaginal birth. This encounter could be described as traumatic, and alternatively, not all surgical interventions are traumatic. The PTSD were not significantly linked with the length of childbirth or the use of anesthesia.

Table C-1

Summary Description of 64 Studies are Including in the Systemic Review

Scales		Article Title	Author	Aim	Country	Population			Timing of assessment	Methods	Result
						Sample	Age	Recruited			
TES-B	1	Posttraumatic stress following childbirth in homelike- and hospital settings	C. A. I. Stramrood., (2011)	To evaluate the frequency of PTSD symptoms after birth in homelike versus hospital setting, and to identify the risk related variables for PTSD profiles.	The Netherlands	907 women	17–45	Midwifery practices, general hospitals and a tertiary (university) referral centre	2 to 6 months after delivery	Questionnaire	The PTSD symptoms after birth were present in 1.2% of participants, and 9.1% of females described the encounter as traumatic. The PTSD profiles were linked with unexpected surgical intervention, a perceived lack of control, and an increased degree of pain. The early differences in PTSD symptoms (in relation to domestic and clinical environments) were not noticeable if taking into consideration the straightforward nature of domestic deliveries.

Table C-1

Summary Description of 64 Studies are Including in the Systemic Review

Scales		Article Title	Author	Aim	Country	Population			Timing of assessment	Methods	Result
						Sample	Age	Recruited			
PTSD-Q	1	Posttraumatic Stress Symptoms Following Childbirth and Mother' Perceptions of Their Infants.	J. Davies et al. (2008)	To explore if PTSD symptoms associated with childbirth and deliver are linked with initial attitudes towards the new baby.	UK	211women	Mean Age 26.13	Inpatients at a Sheffield Maternity Hospital	Within 72 hours of delivery, and at 6 weeks postpartum	Interview and Postal questionnaire	A proportion of 3.8% of females met the complete diagnostic criteria, and an additional 21.3% expressed clinically significant symptoms of at least one PTSD criteria. The females who met the full or partial criteria believed their relationship with the baby to be less positive, and expressed more negative attitudes towards the child. They referred to the child as being unloving, hard to manage, easy to cry, and difficult to nurture.

Table C-1

Summary Description of 64 Studies are Including in the Systemic Review

Scales		Article Title	Author	Aim	Country	Population			Timing of assessment	Methods	Result
						Sample	Age	Recruited			
	2	Prevalence and predictors of post-traumatic stress symptoms following childbirth	Jo Czarnocka and Pauline., (2000) Slade	To highlight the frequency and prospective measures of PTSD symptoms after birth.	UK	264 women with normal births	18±41 years	In-patients in two hospitals in Sheffield	Within 72 hours and at 6 weeks postpartum	Postal questionnaire	A proportion of 3% demonstrated responses which showed clinically significant levels on all three post-traumatic stress dimensions A further 24% showed at least one of the criteria. A forward stepwise regression evaluation created strategies for estimating the outcome factors. The attitudes on a lack of assistance from partners and medical professionals were discovered to be closely linked with prior incidences of PTS. However, personal fragilities such as prior mental issues and worries were also linked with the development of symptoms, and could be utilised as measures for PTSD and depression.

	3	PTSD, risk factors, and expectations among women having a baby: A two-wave longitudinal study	C. Maggioni et al., (2006)	To assess the prevalence of persistent PTSD following labour, in accordance with pre-partum factors (personal character, anamnestic signals and intra-partum medical and neo-natal factors).	Italy	93 Pregnant women	33 years old on average	Recruited from a University City Hospital in Milan, Italy	38-42 gestational week and after 3–6 months from childbirth	Postal questionnaire	A proportion of 2.4% of females experienced complete PTSD profiles. A further 32.1% encountered just one or two characteristics. The degree of pre-natal depression has an impact on PTSD, but only in relation to the imposition subscale. The pre-natal physical danger variables are connected to PTSD in accordance with the avoidance subscale. At Time 2, depression and PTSD are usually both in existence. If you take into account the high number of healthy babies, intra-partum medical factors appear not to have an impact on PTSD symptoms. The increased anxiety levels are strongly linked with surprising childbirth encounters and a perceived lack of assistance from the medical staff.

Table C-1

Summary Description of 64 Studies are Including in the Systemic Review

Scales		Article Title	Author	Aim	Country	Population			Timing of assessment	Methods	Result
						Sample	Age	Recruited			
P.P.Q	1	Childbirth and Narratives: How Do Mothers Deal with Their Child's Birth?	Paola Di Blasio., (2002)	This study is concerned with PTSD problems, which emerge following birth, and aims to supplement the existing research on psychological post-natal disorders.	Italy	64 women with a healthy pregnancy	21- 40 year old	From the Obstetric Department of Mangiagalli Clinic in Milan, Italy	A week before delivery and two days after delivery.	Telephone interview	The findings demonstrated an importance difference in the amount of PTSD symptoms among the two classifications, which supports the existence of the positive impact of emotional disclosure.

Table C-1

Summary Description of 64 Studies are Including in the Systemic Review

Scales		Article Title	Author	Aim	Country	Population			Timing of assessment	Methods	Result
						Sample	Age	Recruited			
	2	Post-traumatic stress symptoms following childbirth and early mother–child interactions: an exploratory study	C. Ionio and P. Di Blasio., (2014)	To find out if PTSD symptoms have an impact on parent-infant bond.	Italy	19 pregnant women	24-40	From the Obstetric Clinic of Northern Italy	Four phases; from the seventh month of pregnancy, two days and two months after delivery, and three months following childbirth.	-Interview -Phone interview -video-recorded	The results indicate that the consistency of PTSD symptoms have an alternative impact on initial parent-infant bond when it comes females who have experienced PTSD related issues.

Table C-1

Summary Description of 64 Studies are Including in the Systemic Review

Scales		Article Title	Author	Aim	Country	Population			Timing of assessment	Methods	Result
						Sample	Age	Recruited			
	3	Symptoms of Postpartum PTSD and Expressive Writing: A Prospective Study	P.Di Blasio et al., (2009)	To examine mental processing and cognitive responses after birth, using the Pennekaber Expressive Writing technique. This has the potential to decrease the prevalence of short and long-term PTSD issues.	Italy	242 women	20 - 43 years	In hospitals of Northern Italy	- A week before childbirth, 48 hours, two months following childbirth and 12 months following childbirth	-Interview -Phone interview -video-recorded	The findings indicate a positive outcome of Expressive Writing, primarily because it enables females to process and interact with negative emotions, anxieties, and fears. This serves as a way to prevent avoidance characteristics and more effectively deal with the cognitive symptoms linked to hyper arousal.

Table C-1

Summary Description of 64 Studies are Including in the Systemic Review

Scales		Article Title	Author	Aim	Country	Population			Timing of assessment	Methods	Result
						Sample	Age	Recruited			
MINI	1	Bio-socio-demographic factors associated with post-traumatic stress disorder in a sample of postpartum Brazilian women	C.F. Zambaldi et al. (2011)	To examine PTSD prevalence in a population of 400 Brazilian females, between 2-26 weeks following birth.	Brazil	400 new mothers	15–44 years	From three medical institutions during routine pediatric evaluations of their newborns	2 and 26 weeks postpartum	Interview	The research discovered a prevalence of around 5.3%. The variables linked with this tendency towards PTSD were decreased spending power, history of psychiatric disorders, clinical disease, and the infant having experienced some complication

Table C-1

Summary Description of 64 Studies are Including in the Systemic Review

Scales		Article Title	Author	Aim	Country	Population			Timing of assessment	Methods	Result
						Sample	Age	Recruited			
	2	Effectiveness of a Counseling Intervention after a Traumatic Childbirth: A Randomized Controlled Trial	J. Gamble et al., (2005)	To evaluate midwife dominated counseling treatments for post-natal females who are at increased risk of showing PTSD symptoms.	Australia	348 women	18-46	From antenatal clinics of three maternity teaching hospitals in Brisbane, Australia	72 hours of birth and again via telephone at 4 to 6 weeks postpartum	Interview	At the three-month session, females recorded a reduction in trauma symptoms, a reduced level of depression, reduced stress levels, and reduced emotions pertaining to self-blame. The positive feelings about future pregnancy were increased for the females in the group sessions. Just three of the intervention group fulfilled diagnostic criteria, but 9 of the control group met them after three months following birth. However, this finding is small enough to be considered statistically unimportant.

Table C-1

Summary Description of 64 Studies are Including in the Systemic Review

Scales		Article Title	Author	Aim	Country	Population			Timing of assessment	Methods	Result
						Sample	Age	Recruited			
	3	Post-traumatic stress disorder following childbirth in Nigerian women: prevalence and risk factors	Adewuya A et al., (2006)	To predict the frequency of PTSD following birth among a population of Nigerian females, and to evaluate any relevant risk variables.	Nigeria	876 women at 6 weeks postpartum	Mean Age 25.98 years	Postnatal clinics and infant immunisation clinic; five health centres in the Llesa township, Nigeria.	6 weeks	Hand a questionnaire	The risk of PTSD stands at 5.9%. The variables linked with PTSD following birth are associated with clinical admission as a result of gestation difficulties

Table C-1

Summary Description of 64 Studies are Including in the Systemic Review

Scales		Article Title	Author	Aim	Country	Population			Timing of assessment	Methods	Result
						Sample	Age	Recruited			
PCL-C	1	Changes in PTSD symptomatology and mental health during pregnancy and postpartum	Onoye et al., (2013)	To assess the longitudinal developments in PTSD, depression, and anxiety throughout gestation and after birth.	USA	119 Women	18–35 years	From outpatient obstetrics and gynecology clinics In Oahu, Hawai'i.	The first trimester; the second trimester; during the third trimester; and at postpartum	Interview	On the whole, during pregnancy, there was a decreasing correlation of PTSD symptoms. In terms of general anxiety, there was a big shift over time. Yet, anxiety related signals were individually variable within the pace of change. In terms of depression and overall stress, there was also a reduced level, and it was variable for the individual rate of change among females throughout gestation.

Table C-1

Summary Description of 64 Studies are Including in the Systemic Review

Scales		Article Title	Author	Aim	Country	Population			Timing of assessment	Methods	Result
						Sample	Age	Recruited			
	2	Predictors of Posttraumatic Stress Disorder Symptoms Among Low-Income Latinas During Pregnancy and Postpartum	L. A. Sumner et al., (2012)	This study evaluated the input of psychosocial symptom of PTSD.	USA	206 low-income Latinas women who receiving prenatal services	Mean Age 27.7 years	From an obstetrics clinics serving Latina populations	During pregnancy and at 7 and 13 months postpartum	Interview	The findings indicate that were linked with PTSD during pregnancy. Whilst taking into account PTSD symptoms at a baseline, PTSD symptom at 7 months after birth were linked with depression, a lack of social support, and IPV history, but not the experience of past traumas unrelated to birth. Whilst taking into account PTSD symptoms at 7 months following birth, PTSD symptom at 13 months were linked with depression and IPV.

Table C-1

Summary Description of 64 Studies are Including in the Systemic Review

Scales		Article Title	Author	Aim	Country	Population			Timing of assessment	Methods	Result
						Sample	Age	Recruited			
DTS	1	Posttraumatic Stress Disorder after Pregnancy, Labour, and Delivery	M. M. Cohen et al. (2004)	To find out whether a hard delivery is linked with PTSD, and to find out the role of socio-demographics, prior experiences of trauma, depression, and previous traumatic events.	Canada	200 new mothers	Not specific	The postpartum ward of six Toronto-based hospitals	Day after delivery AND 8-10 weeks postpartum	Interview by telephone	The findings expressed no variable indicative of a hard delivery as being strongly linked with increased PTS score, aside from having two or more maternal issues. There were additional independent measures of increased PTS ratings, such as depression during gestation, and having experience more than two traumatic incidents, as well as being a Canadian born, having higher income, and belonging to a midway income classification.

Table C-1

Summary Description of 64 Studies are Including in the Systemic Review

Scales		Article Title	Author	Aim	Country	Population			Timing of assessment	Methods	Result
						Sample	Age	Recruited			
MPSS-SR	1	PTSD following childbirth: A prospective study of incidence and risk factors in Canadian women MPSS-SR	N. Verreault (2012)	To predict the prevalence and development of complete and partial PTSD after birth, and to potentially highlight variables linked with the progress of PTSD at four weeks following the delivery.	Canada	308 Women	Not specific	Clinic and Community	25–40 weeks gestation, 4–6 weeks postpartum, 3 and 6 months postpartum	- Face to face in the clinic sitting. - Phone screening using a random digit dialing in community	The prevalence of complete and partial PTSD characteristics at four weeks following the delivery (7.6% and 16.6%, respectively). The multivariate logistic regression demonstrated an increased level of anxiety, (OR=1.75; 95% CI=1.19 2.57, p=. 005), a history of sexual trauma, (OR=2.81; difficult delivery encounter (OR=0.96; 95% CI=0.94 0.98, p=. 001), and less available social support at 1 month postpartum (OR=0.40; 95% CI=0.17 0.96, p=. 041) independently predicted complete or partial PTSD at four weeks following childbirth.

Table C-1

Summary Description of 64 Studies are Including in the Systemic Review

Scales		Article Title	Author	Aim	Country	Population			Timing of assessment	Methods	Result
						Sample	Age	Recruited			
PTCS	1	Prevalence of Negative Birth Perception, Disaffirmation, Perinatal Trauma Symptoms, and Depression Among Postpartum Women	D. S. Sorenson, and L. Tschetter, (2010)	To conclude an investigative study exploring new incidences and frequencies of PTSD profiles, particularly among females with negative opinions on delivery, provider anxieties, perinatal stress signals, and depression at 6-7 months following birth.	USA	71 White women	Ages 22–42	A Nonprobability sample was drawn from archived birth announcements published in the county's only daily newspaper listing parent(s) name and city of residence in the South Dakota (SD) county	6–7 months postpartum	Phone and Mailing addresses	The new incidence frequency of negative delivery attitudes, perinatal stress symptoms, disaffirmation, and depression are larger than they are for other high anxiety conditions.

Table C.2
The references of the scales' psychometric characteristics

	Measures	**Reference**
1	**IES** **Impact of Event Scale (Horowitz et al., 1979)**	Horowitz, M.,Wilner, N., & Alvarez,W. (1979). Impact of Event Scale: A measure of subjective stress. *Psychosomatic Medicine*, 41, 209–218
2	**IES-R** **Impact of Event Scale – Revised (Weiss & Marmar, 1997)**	Creamer, M., Bell, R., & Failla, S. (2003). Psychometric properties of the Impact of Event Scale - Revised. *Behaviour Research Therapy*, 41(12), 1489-1496.
3	**PDS** **The Posttraumatic Diagnostic Scale** **(Foa et al., 1997)**	Foa, E. B., Cashman, L., Jaycox, L., & Perry, K. (1997). The validation of a self-report measure of posttraumatic stress disorder: the posttraumatic diagnostic scale. *Psychological Assessment*, 9(4), 445–451.
4	**PSS-SR** **Post-traumatic Symptom Scale** **(Foa et al., 1993)**	Foa, E. B., Riggs, D. S., Dancu, C. V., & Rothbaum, B. O. (1993). Reliability and validity of a brief instrument for assessing post-traumatic stress disorder. *Journal of Traumatic Stress*, 6(4), 459-473.
5	**PSS-i** **PTSD Symptom Scale - interview** **(Foa et al., 1993)**	Foa, E. B., Riggs, D. S., Dancu, C. V., & Rothbaum, B. O. (1993). Reliability and validity of a brief instrument for assessing post-traumatic stress disorder. *Journal of Traumatic Stress*, 6(4), 459-473.
6	**MPSS-SR** **The Modified PTSD Symptom Scale Self-Report** **(Falsette, 1997)**	Falsetti, S. A., Resnick, H. S., Resick, P. A., & Kilpatrick, D. (1993). The Modified PTSD Symptom Scale: A brief self-report measure of posttraumatic stress disorder. *The Behavioral Therapist*, 16, 161-162.
7	**TES** **Traumatic Event Scale** **(Wijma et al, 1997)**	Wijma, K., Söderquist, J., & Wijma, B. (1997). Posttraumatic stress disorder following childbirth: A cross sectional study. *Journal of Anxiety Disorders*, 11(6), 587-597.
8	**TES –B** **Traumatic Event Scale-B (Wijma et al.,997)**	Wijma, K., Söderquist, J., & Wijma, B. (1997). Posttraumatic stress disorder following childbirth: A cross sectional study. *Journal of Anxiety Disorders*, 11(6), 587-597.

Table C.2
The references of the scales' psychometric characteristics

	Measures	**Reference**
9	**D-Q** **Posttraumatic Stress Disorder Questionnaire (Czarnocka & Slade, 2000)**	Czarnocka, J., & Slade, P. (2000). Prevalence and predictors of post-traumatic stress symptoms following childbirth. *British Journal of Clinical Psychology*, 39(1), 35-51.
10	**P.P.Q** **The Perinatal Post Traumatic Stress Disorders Questionnaire (De Mier et al., 1996)**	Quinnell, F. A., & Hynan, M. T. (1999). Convergent and discriminant validity of the perinatal PTSD questionnaire (PPQ): a preliminary study. *Journal of Traumatic Stress*, 12(1), 193-199.
11	**MINI** **The Mini-International Neuropsychiatric Interview (Lecrubier et al., 1997)**	Sheehan, D. V., Lecrubier, Y., Sheehan, K. H., Amorim, P., Janavs, J., Weiller, E., . . . Dunbar, G. C. (1998). The Mini-International Neuropsychiatric Interview (M.I.N.I.): the development and validation of a structured diagnostic psychiatric interview for DSM-IV and ICD-10. *Journal of Clinical Psychiatry*, 20, 22-33.
12	**PCL-C** **TSD Checklist—Civilian Version (Weathers et al., 1994).**	Conybeare, D., Behar, E., Solomon, A., Newman, M. G., & Borkovec, T. D. (2012). The PTSD Checklist-Civilian Version: reliability, validity, and factor structure in a nonclinical sample. *Journal of Clinical Psychiatry*, 68(6), 699-713.
13	**DTS** **Davidson Trauma Scale (Davidson et al., 1997)**	Cohen, M. M., Ansara, D., Schei, B., Stuckless, N., & Stewart, D. E. (2004). Posttraumatic stress disorder after pregnancy, labor, and delivery. *Journal of Women's Health*, 13(3), 315-324
14	**PTCS** **Posttraumatic childbirth stress inventory (Sorenson, 2000b, 2003)**	Sorenson, D. S. (2000b). *Post-traumatic stress disorder inventory*. Brookings, SD: South Dakota State University.

Table 4.4

Chi square to compare women who reached PTSD criteria and women who have not reached the criteria following childbirth in both samples

			PTSD criteria not met		PTSD criteria met		Total		PTSD criteria not met		PTSD criteria met		Total	
			Saudi		**Saudi**				**British**		**British**			
Variables		**Sub scales**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
Education		Less than high school	34	8.4	2	0.5	36	8.9%	1	0.8	0	0.0	1	0.8%
		High school graduate	107	26.4	12	3.0	119	29.3%	4	3.3	0	0.0	4	3.3%
		University /college	177	39.9	39	9.6	216	53.2%	41	34.2	8	6.7	49	40.8%
		Post graduate degree	28	6.9	5	1.2	33	8.1%	47	39.2	6	0.5	53	44.2%
		Other (Trade/technical/l training/ diploma)	1	0.2	1	0.2	2	0.5%	10	8.3	3	2.5	13	10.8%
		Total	347	85.0%	59	14.5%	406	100.0%	103	85.8%	17	2.5%	120	100%
			(χ^2 = 8.42, df= 4, p= .077						(χ^2 = 2.21, df= 4, p= .696					
Marital Status		Single							5	4.0	3	2.4	8	6.5%
		Married							70	56.5	11	8.9	81	65.3%
		Domestic Partnership							31	25.0	4	3.2	35	28.2%
		Widowed							0	0.0	0	0.0	0.0	0.0%

Table 4.4

Chi square to compare women who reached PTSD criteria and women who have not reached the criteria following childbirth in both samples

			PTSD criteria not met		PTSD criteria met		Total		PTSD criteria not met		PTSD criteria met		Total	
			Saudi		**Saudi**				**British**		**British**			
Variables		**Sub scales**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
		Divorced							0	0.0	0	0.0	0.0	0.0%
		Separated							0	0.0	0	0.0	0.0	0.0%
		Total							106	85.5%	18	14.5%	124	100.%
									(χ^2 = 3.73, df= 2, p= .155					
		Married	300	73.5	56	13.7	356							
		Separated without divorce	24	5.9	0	0.0	24	5.9%						
		Separated with divorced after birth	6	1.5	0	0.0	6	1.5%						
		Separated, back after birth	5	1.2	3	0.7	8	2,0%						
		Widowed	13	3.2	1	0.2	14	3.4%						
		Total	348	85.3%	60	14.7%	408	100%						

Table 4.4

Chi square to compare women who reached PTSD criteria and women who have not reached the criteria following childbirth in both samples

		PTSD criteria not met		PTSD criteria met		Total		PTSD criteria not met		PTSD criteria met		Total	
		Saudi		**Saudi**				**British**		**British**			
Variables	**Sub scales**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
		(χ^2 = 9.42, df= 4, p= .051											
Occupational	Unemployed	193	47.7	29	7.2	222	54.8%	80	65.0	10	8.1	6	4.9%
	Employed full time	79	19	13	3.2	92	22.7%	9	7.3	2	1.6	90	73.2%
	Employed part time	20	4.9	1	0.2	21	5.2%	3	2.4	3	2.4	11	8.9%
	Self-employed	17	4.2	3	0.7	20	4.9%	2	1.6	1	0.8	6	4.9%
	Student	35	8.6	12	3.0	47	11.6%	4	3.3	2	1.6	3	2.4%
	Retired	1	0.2	0	0.0	1	0.2%	7	5.7	0	0.0	7	5.7%
	Other	1	0.2	1	0.2	2	0.5%	0	0.0	0	0.0	0.0	00
	Total	346	0.2%	59	14.6%	405	100%	105	85.4%	18	14.6%	123	100%
		(χ^2 = 8.77, df= 6, p= .187						(χ^2 = 10.731, df= 5, p= .057					

Table 4.4

Chi square to compare women who reached PTSD criteria and women who have not reached the criteria following childbirth in both samples

		PTSD criteria not met		PTSD criteria met		Total		PTSD criteria not met		PTSD criteria met		Total	
		Saudi		**Saudi**				**British**		**British**			
Variables	**Sub scales**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
Household income	Low Under £15,000-£30,000	123	39.0%	20	6.3%	143	45.4%	23	19.0	5	4.1	28	23.1%
	Average -£30,000-£ 45,000	110	25.2	26	6.0	102	32.4%	27	22.3	7	5.8	34	28.1%
	Above average-£45,000-£ 60,000	56	12.8	9	2.1	44	14.0%	18	14.9	3	2.5	21	17.4%
	High -£60,000-£75,000	25	5.7	4	0.9	15	4.8%	13	10.7	1	0.8	14	11.6%
	Above high -£75,000+	29	6.7	6	1.4	11	3.5%	22	18.2	2	1.7	24	19.8%
	Total	263	83.5%	52	16.5%	315	100%	103	85.1%	18	14.9%	121	100%
	(χ^2 = 4.53, df= 4, p= .338							(χ^2 = 2.55, df= 4, p= .636					
Ethnicity	British white background							87	70.2	18	14.5	105	84.7%
	Mixed / Multiple ethnic groups (White and Black Caribbean, White and Black African, White and Asian)							4	3.2	0	0.0	4	3,2%
	Asian / Asian British (Indian – Pakistani – Bangladeshi – Chinese)							4	3.2	0	0.0	4	3.2%

Table 4.4

Chi square to compare women who reached PTSD criteria and women who have not reached the criteria following childbirth in both samples

			PTSD criteria not met		PTSD criteria met		Total		PTSD criteria not met		PTSD criteria met		Total	
			Saudi		**Saudi**				**British**		**British**			
Variables		**Sub scales**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
		Black / African / Caribbean / Black British							2	1.6	0	0.0	2	1.6%
		Other							9	7.3	0	0.0	9	7.3%
		Total							106	85.5%	18	14.5%	124	100%
									(χ^2 = 3.81, df= 4, p= .432					
Nationality		Saudi	283	71.1	45	11.3	328	82.4%						
		Gulf	5	1.3	0	0.0	5	1.3%						
		Egyptian	14	3.5	4	1.0	18	4.5%						
		Syria	9	2.3	0	0.0	9	2.3%						
		Jordanian	9	2.3	3	0.8	12	3.0%						
		Iraqi	4	1.0	1	0.3	5	1.3%						
		Sudanese	6	1.5	2	0.5	8	2.0%						

Table 4.4

Chi square to compare women who reached PTSD criteria and women who have not reached the criteria following childbirth in both samples

			PTSD criteria not met		PTSD criteria met		Total		PTSD criteria not met		PTSD criteria met		Total	
			Saudi		**Saudi**				**British**		**British**			
Variables		**Sub scales**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
		Eritrea	1	0.3	0	0.0	1	0.3%						
		Somalia	2	0.5	1	0.3	3	0.8%						
		Chadian	3	0.8	0	0.0	3	0.8%						
		Palestine	2	0.5	1	0.3	3	0.8%						
		Yemeni	1	0.3	1	0.3	2	0.5%						
		Korean	1	0.3	0	0.0	1	0.3%						
		Total	340	85.4	58	14.6	398	100%						
Religion		Religion	343	85.3	59	14.7	402	100%	58	46.7%	9	7.2%	67	54%
		No religion	0	00	0	00	0	0	48	38.7%	9	7.3%	57	46.0%
		Total	343	85.3%	59	14.7%	402	100%	106	85.5%	18	14.5%	124	100%
			(χ^2 = .172, df= 1, p= .678						(χ^2 = 7.30, df= 5, p= .199					

Table 4.4

Chi square to compare women who reached PTSD criteria and women who have not reached the criteria following childbirth in both samples

			PTSD criteria not met		PTSD criteria met		Total		PTSD criteria not met		PTSD criteria met		Total	
			Saudi		**Saudi**				**British**		**British**			
Variables		**Sub scales**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
Delivery		Normal vaginal delivery	240	59	45	11.1	285	70.0%	48	38.7	6	4.8	54	43.5%
		Assisted delivery	11	2.7	6	1,5	17	4.2%	32	25.8	4	3.2	36	29.0%
		Caesarean section	96	23.6	9	2.2	105	25.8%	25	20.2	7	5.6	32	25.8%
		Other	0	0.0	0	0.0	0	0.0	1	0.8	1	0.8	2	1.6%
		Total	347	85.3	60	14.7%	407	100%	106	85.5%	18	14.5%	124	100%
			(χ^2 = 9.14, df= 2, p= .010						(χ^2 = 4.26, df= 3, p= .234					
Contraction		Natural Contraction	27	24.5	13	11.8	40	36.4%	41	74.5	6	10.9	47	85.4%
		Induce Contraction	56	50.9	8	7.3	64	58.2%	7	12.7	1	1.8	8	13.7%
		Natural+ Induce	6	5.5	0	0.0	6	5.5%	0	0	0	0	0	00
		Total	89	80.9%	21	19.1%	110	100%	48	87.3%	7	12.7	55	100%
			χ^2 = 7.87, df= 2, p= .020						(χ^2 = .000, df= 1, p= .983					

Table 4.4

Chi square to compare women who reached PTSD criteria and women who have not reached the criteria following childbirth in both samples

			PTSD criteria not met		PTSD criteria met		Total		PTSD criteria not met		PTSD criteria met		Total	
			Saudi		**Saudi**				**British**		**British**			
Variables		**Sub scales**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
Using pain relievers		Nothing	120	30.3	19	4,8	139	35.1%	9	7.5	0	0.0	9	7.5%
		Hydrotherapy (being in water)	3	0.8	1	0.3	4	1.0%	12	10.0%	1	0.8%	13	10.8%
		Gas and air (Entonox)	75	18.9	9	2.3	84	21.2%	25	20.8	4	3.3	29	24.2%
		Pethidine injections	66	16.7%	11	2.8%	77	19.4%	13	10.8%	2	1.7%	15	12.5%
		Epidural anesthesia	62	15.7%	15	3.8%	77	19.4%	40	33.3%	7	5.8%	47	39.1%
		Other	11	2.8%	4	1.0%	15	3.8%	3	2.5%	0	0.0	3	2.5%
		Hydrotherapy+ Epidural anesthesia	0	0.0%	0	0.0%	0.0	0.0%	1	0.8%	3	2.5%	4	3.3%
		Total	337	85.1%	59	14.9%	396	100%	103	85.8%	17	14.2%	120	100%
			(χ^2 = 4.584, df=5, p= .469						(χ^2 = 14.635, df= 5, p= .023					
Abortion		No	303	74.4	49	12.0	352	86.5%	91	73.4	17	13.7	108	87.1%
		Yes	44	10.8	11	2.7	55	13.5%	15	12.1	1	0.8	16	12.9%

Table 4.4

Chi square to compare women who reached PTSD criteria and women who have not reached the criteria following childbirth in both samples

		PTSD criteria not met		PTSD criteria met		Total		PTSD criteria not met		PTSD criteria met		Total	
		Saudi		**Saudi**				**British**		**British**			
Variables	**Sub scales**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
	Total	347	85.3%	60	14.7%	407	100%	106	85.5%	18	14.5%	124	100%
		(χ^2 = 1.39, df= 1, p= .237						(χ^2 = 1.012, df= 1, p= .463					
Psychological	No	329	80.6	52	12.7	381	93%	85	68.5	9	7.3	94	75.8%
	Yes	19	4.7	8	2.0	27	6.6%	21	16.9	9	7.2	30	24.2%
	Total	348	85.3%	60	14.7%	408	100%	106	85.5%	18	14.5%	124	100%
		(χ^2 = 5.13, df= 1, p= .023						χ^2 = 7.64, df= 1, p= .006					
Time since the birth	less than one month	73	18.3	9	2.3	82	20.5%	10	8.1	0	0.0.	10	8.1%
	1 to less than 3 month	32	8.0	5	1.3	37	9.3%	17	13.7	0	0.0	17	13.7%
	3 to less than 6 month	54	13.5	8	2.0	62	15.5%	22	17.7	4	3.2	26	21.0%
	6 to less than 9 months	66	16.5	5	1.3	71	17.8%	24	19.4	5	4.0	29	23.4%
	9 to 12 months	116	29.0	32	8.0	148	37%	33	26.6	9	7.3	42	33.9%

Table 4.4

Chi square to compare women who reached PTSD criteria and women who have not reached the criteria following childbirth in both samples

			PTSD criteria not met		PTSD criteria met		Total		PTSD criteria not met		PTSD criteria met		Total	
			Saudi		**Saudi**				**British**		**British**			
Variables		**Sub scales**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
		Total	341	85.3%	59	14.8%	400	100%	106	85.5%	18	14.5%	124	100%
			(χ2 = 10.05, df= 4, p= .040						(χ^2 = 6.392, df= 4, p= .172					